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A JOURNAL OF CLINICAL AND HEALTH AFFAIRS



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Frog Deformities

Searching for answers

JANUARY 1999



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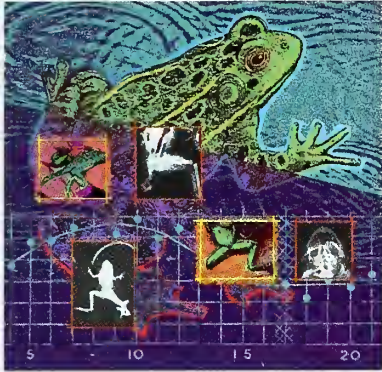
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Mnemonics, Medicine, and Marriage

Medical marriages must be special. Authors like Wayne and Mary Sotile write books about them. Clinics like the Menninger hold seminars to improve them. And, as summarized in this month's



MMA Alliance Update (page 20), the medical association devoted an Annual Meeting session to discussing them. So what's so special about medical marriages? Are they paradigms of wedded bliss like the union of Donna Reed and Dr. Stone? Or are they dens of domestic turbulence as portrayed on "ER" or in that infamous movie

"The Doctors' Wives"? It's an important issue for medicine because doctors caught in bad marriages don't perform well as doctors.

Medical marriages come in all flavors—two physician, one physician/one nonworking spouse, one physician/one nonphysician working spouse. Each pairing carries unique time demands and personal challenges. The common thread is that one partner works in medicine.

So what's special about medicine? Doctors are peculiar. They're competitive, work-oriented, achieving perfectionists who have endured long years of deferred gratification. They have withstood the gauntlet of medical school and residency, learning by intimidation a deluge of information about which they never quite feel secure. They emerge with a finely honed sense of responsibility to their vocation and plunge into practicing medicine.

Medical practice is rigorous. Regardless of the practice arrangement, time rules. Regardless of the patient population, illness always calls. And regardless of how good the training or how many years in practice, uncertainty never evaporates.

So who has brain space for a spouse? With a job description like the above, maybe the healthiest proposal for the medical

profession would be celibacy.

But maybe medicine is not so special. The '90s have been the decade of the working couple, the all-consuming corporation, the driven kids. No jobs or professions are exempt. Stress permeates the American psyche. And doctors are not the hardest-working folks around. Confronting death and illness is stressful, but we were trained for it. Getting calls at 2 a.m. gets old, but try traveling on airplanes five days a week. Brain space sparsity is a malady more widespread than the common cold, and as brain space lessens, listening and loving slacken.

So we've all got troubles—doctors, lawyers, masons, cooks. How can marriage work, or, as Gene Pitney said in that '60s favorite, "Town without Pity," "How can love survive?" Actually, they're both having a hard time. Fifty-percent divorce rates and marriage counselors at every corner bespeak a nation struggling to find marital harmony.

Risking the label armchair psychiatrist or dime-store counselor, I'm going to claim expertise in this subject as a happy survivor of 27 years of a medical marriage and offer some take-home advice. Any catchy mnemonic needs three easy lessons, so here are mine: 1) Take time—any important relationship requires a minimum amount of time together to nurture it. If either of you is gone too much, you may grow, but you're more likely to grow apart. 2) Take the other as yourself—militant individualism has no place in a loving relationship. 3) Don't take yourself too seriously—blow off the small stuff; only a few things in a marriage are truly "big" and the biggest of these is your love for one another. Having just rounded the big 5-0, I get to write about love and marriage and, with pleasure, I get to contemplate the prospect of growing old and further in love with my mate of 27 years.

Medical marriages aren't so special. All marriages are special; all marriage partners have daily demands that stoke their adrenaline and rob their attention; and all marriages are fragile, potentially endangered species that need vigilant protection.

.....
—Charles R. Meyer, M.D., Editor-in-Chief

.....
"Doctors caught in bad marriages don't perform well as doctors."

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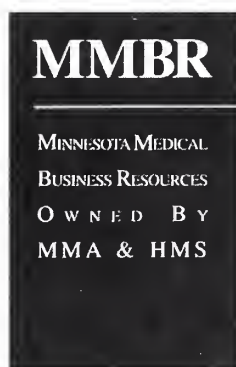
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Heeding the Brave

MPCA biologist

Judy Helgen, Ph.D., is leading the state's search for the cause of frog deformities reported in alarming numbers across the globe, and she's listening closely to decipher the message of her amphibious friends.

By Amy S. Feehan

To some people, deformed frogs might seem like something out of a circus sideshow. But to Judy Helgen, the tiny amphibians she has often cradled in her hands—with their missing or extra limbs—are brave messengers deserving our respect and concern. Because she suspects these frogs have something important to tell us about our environment, she listens closely to their throaty croaks.

The cause behind deformities in Minnesota's frogs (and frogs in other parts of the United States and the world) remains one of the most high-profile biological mysteries of the decade. It's a mystery in which Helgen, a water-quality research scientist at the Minnesota Pollution Control Agency (MPCA), is firmly entrenched. In fact, reports of frog deformities have escalated to the point that investigating them is basically a full-time job. Helgen knows, because it's her job.

"As the first reports started coming in, and it was becoming clear that the deformed frogs found in one Minnesota county were not just an isolated incident, I remember getting the chills," Helgen recalls. "It was alarming." Pausing, she adds, "It still is alarming."

Indeed, these frogs could be a harbinger of widespread environmental problems. And if the source of the deformities is shown to be a pollutant, there could be important implications for human health, Helgen says. "Frogs often react to environmental changes long before other species, such as humans.

They can, in a sense, show us the future."

Helgen, who holds a Ph.D. in zoology and freshwater ecology, has a difficult job. As one of three leaders of the investigative effort in Minnesota, she's encountered her share of controversy and challenges. "This issue has attracted attention across many different disciplines, from politics ... to genetics," she says. With the attention has come some scientific infighting, which can slow progress considerably, but it also means that many scientists are working to solve the problem.

Plus, there's the issue of resources. Helgen has a small staff—not to mention her other professional responsibilities in developing biological indicators for wetlands, attending conferences, giving lectures, and managing staff.

But Helgen remains undeterred. She continues to bring the plight of Minnesota's misshapen amphibians to the attention of scientists and concerned citizens. It's a natural role for her. "Every job I've ever had has prepared me for the job I have today," says the nine-year MPCA veteran. Her previous work in genetics, pesticide effects, and wetlands preservation makes Helgen uniquely qualified for her self-described role as "frog advocate."

Helgen's environmental ethic runs deep. After teaching biology at St. Olaf College from 1983 to 1988, she worked on research projects on transgenic fish and gene expression in invertebrate cells at University of Minnesota labs. In 1989, she joined the

Messengers

MPCA as manager of various wetlands projects. She started working on biologic indicators in the early 1990s. If she weren't a biologist, Helgen says, she'd like to try her hand at environmental journalism. She likes to spend time outdoors gardening at her Roseville home, where she lives with her husband, Verlyn Smith, a retired minister.

Call for Help

In early August 1995, Helgen received a phone call that would change the direction of her work at the MPCA. She had been busy compiling an index of biological indicators of thriving wetlands. Not surprisingly, frogs, which commonly inhabit wetlands and are highly sensitive to environmental pollutants, were on the list.

If frogs can successfully reproduce in a wetland, the logic goes, the water quality there must be good. "Frogs are particularly sensitive to chemical pollution because, as amphibians, they live both in water and on land," Helgen explains. "Furthermore, they breathe through their skin, so they easily absorb substances in air and water."

Naturally, then, deformed frogs were of interest



PHOTOGRAPH BY DAVID ELLIS

"It was like nothing my colleagues or I had ever seen," Helgen says. "You can expect a small percentage of deformities in any given frog population. But we were seeing 30 to 50 percent deformity rates at some ponds."

to Helgen and fell within her area of expertise. When middle school students from Le Sueur, Minnesota, found a large number of deformed frogs during a field trip to a farm pond across the Minnesota River from Henderson, the call went to her.

More Reports

After news of the deformed frogs spread, more reports started coming in to the MPCA from all over Minnesota. There were reports of frogs with missing legs and extra legs, and legs sticking out from the body at odd angles. Some frogs were missing an eye; others had excessive webbing of the skin. Still others appeared to have smaller sex organs and deformed spines.

By the summer of 1996—one year after the first report—frogs with varying degrees of deformity had been discovered in nearly two-thirds of Minnesota's 87 counties. "It was like nothing my colleagues or I had ever seen," Helgen says. "You can expect a small percentage of deformities in any given frog population. But we were seeing 30 to 50 percent deformity rates at some ponds."

continued

Fielding Inquiries

Minnesota's discoveries sparked similar reports of deformed frogs throughout the United States, Canada, and even Japan. And Helgen's job changed accordingly. Almost overnight she and her colleague Mark Gernes became the main contacts on the issue, fielding inquiries from universities, federal agencies, other state agencies, departments of health, private researchers, grassroots groups, and the media. Every caller seemed to propose a different theory of what might be causing deformities in Minnesota frogs, many of which sounded plausible to Helgen. "I didn't want to rule anything out," she says.

To better respond to such inquiries, Helgen took two important steps. First, she sought funding and staff to survey frogs and collect water and mud samples from deformity sites. Part of the funding helped pay for Hamline University to develop a World Wide Web site, "A Thousand Friends of Frogs" (<http://cgee.hamline.edu/frogs/>), for the public to record deformity sightings in the state. And the MPCA developed its popular Web site (www.pca.state.mn.us), which offers information and shows live frogs on camera. Both sites see a surprising amount of Internet traffic each month.

"Public involvement is crucial," Helgen says. "We wouldn't even be investigating deformed frogs if kids and other volunteers hadn't brought them to our attention." Second, she embarked on painstaking field research in conjunction with federal scientists. "I sought partnerships with other scientists who could provide chemical analysis of water and mud from the sites or could analyze the frogs themselves," Helgen explains.

In one of two studies, Helgen and her staff collected water samples from more than a dozen deformity "hot spots" across Minnesota. Scientists then attempted to cultivate frog embryos in that water, in varying dilutions. At concentrations above 50 percent "hot spot" water, a large percentage of the embryos showed a wide range of abnormalities.

Helgen and her colleagues made these results public, including the fact that some of the water tested came from private wells. The study drew fire from other agencies, which questioned the interpretation of the results and the study's reliability. In fact, more recent studies have replicated most of those earlier results.

Helgen believes the answer to Minnesota's frog mystery most likely lies in the water. She points out that water taken from deformity sites causes abnormalities in more than one frog species, and certain concentrations of site water cause deformities. David Hoppe, an amphibian expert at the University of Minnesota-Morris, has observed that the

frogs most likely to be deformed are those that spend the most time in the water. Also, most of the deformities Helgen has seen are developmental in nature—and frogs do their developing in water. What's more, she hasn't seen convincing proof that parasites or inherited genetic mutations could be solely to blame for the deformities, and disease agents do not seem to be involved.

Helgen and others don't know whether the culprit is something in the water or what that substance might be, but scientists are investigating the effects of both natural and manmade chemicals. Helgen is intrigued by the work of McGill University researcher Martin Ouellet, which links frog deformities to agricultural chemicals in runoff water. Ouellet has examined almost 30,000 frogs along a 150-mile stretch of the St. Lawrence River Valley since 1991, finding large numbers of deformities in sites subject to pesticides.

In November, Helgen, Ouellet, and about 40 fellow scientists discussed these and other findings and considered future research directions at a three-day meeting in San Diego. Helgen says she remains open to all options. "I think we'll eventually find that the deformities are the result of a combination of factors, such as two chemicals interacting or one that is modified by UV light." Conversely, Helgen says, she hasn't entirely ruled out a single cause. Either way, she expects that solving the mystery may take years.

Eventually, Helgen says, she hopes this experience with deformed frogs will help the MPCA and other groups successfully preserve more of Minnesota's wetlands. "As a result of what's happened, people are learning more about wetlands and frogs and what it takes to keep them both healthy and thriving," she says. "And that's the goal of any conservation biologist."

MM

Amy Feehan is associate editor of the Mayo Clinic Health Letter, Mayo Clinic, Rochester, Minnesota.

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5

REASONS WHY DOCTORS SHOULD CARE ABOUT DEFORMED FROGS

BY WILLIAM SOUDER

In November 1998, the National Science Foundation convened a three-day meeting of some 50 developmental biologists, toxicologists, and field herpetologists to consider the possible causes of amphibian deformities being reported across North America. The conference was held at the San Diego Zoo, in a sunny meeting room perched high on a lushly forested hillside overlooking the zoo grounds. The weather was lovely and the view sparkling as participants chatted by the breakfast buffet and gazed out at the dawn.



Things grew less clear, however, once the talks began each day. As Hillary Carpenter explains in this issue's cover story (page 14), the three-year, multiagency investigation into the deformed frog problem

has produced more questions than answers. The conference discussions—often animated—focused on the range of potential causes and their implications. By the end, the group had reached just one conclusion: more study is needed.

And so it goes. The more the frog problem is scrutinized, the more complex it becomes. Whatever is causing the outbreaks of frog deformities in wetlands from the Pacific to the Atlantic is awash in a highly fluid matrix of ecological and anthropogenic influences. We know, from records in scientific literature going back centuries, that amphibian deformities can occur naturally. We also know, from experimental evidence, that frogs are susceptible to the teratogenic effects of ultraviolet radiation and the many chemical compounds that have only become widespread in the environment in recent decades. What we don't know is which of these plausible explanations is behind the amphibian deformities currently being investigated. Researchers strongly suspect that it's more than one of the above. John McLachlan of Tulane University, one of the San Diego meeting participants, explained the options this way: Big problem + one mechanism = Nobel Prize, or, big problem + multiple factors = reality.

There is no easy solution. Given such uncertainty, why should doctors—or anyone else—concern themselves with frog deformities? Hillary Carpenter points out that it would be premature to assume any direct human health impact related to the amphibian problem. But would it not also be premature to entirely rule out such concerns? My view, after two years of intensively following this amazing story, is that plenty of issues raised should worry us. Here are five:

1. Developmental problems merit special concern. Complex higher organisms begin as a single

fertilized cell, which, in an unfathomably intricate cascade of molecular signals and cellular transformations, becomes the adult phenotype. These guiding biochemical pathways are the products of millions of years of evolution. We have barely begun to understand which of the tens of thousands of man-made compounds synthesized in just the past century are bioactive and thus have the potential to interfere with a developmental process that was eons in the making. What is certain at this point is that

development is the most sensitive stage of life. Fleeting exposures to vanishingly small doses of powerful teratogens can have gross consequences for the maturing organism. We don't know if chemicals in the environment are responsible for any of the frog deformities, but the mere possibility is a chilling thought.

2. We don't know how to translate ecological problems into human terms. But we need to learn. While there is a growing consensus that environmental conditions, biodiversity, and human health are interrelated, establishing specific correlations between problems in

wildlife populations and human health is difficult. Many scientists believe that certain wildlife species are—like the canaries once used in coal mines to warn of poison gas—important sentinels that can detect environmental insults with the potential to harm people. But the issue is complicated. Not every toxin has the same effect across species. Thalidomide, the sedative widely prescribed in Great Britain in the early 1960s for morning sickness in pregnant women, was believed safe because in laboratory tests it produced no abnormalities in the offspring of mice and rats treated with the drug during pregnancy. Sadly, thalidomide produced an array of horrifying birth defects in humans, including a condition called focomelia, in which the limb bones are absent or severely reduced, resulting in a flipper-like appendage. The lesson—certainly with respect to teratogenic compounds and very likely for the whole array of toxic chemicals—is that different species respond differently to the same agents. A chemical that is benign to one organism may be toxic to another, and vice versa. ⇒

- 1 Developmental problems merit special concern.
- 2 We don't know how to translate ecological problems into human terms.
- 3 We're talking about the basic architecture of life.
- 4 Studying frog deformities can add to our basic understanding of biology.
- 5 Frogs are important to humans for practical and aesthetic reasons.



3. We're talking about the basic architecture of life. Modern frogs are descended from primitive amphibians that evolved some 350 million years ago. These first land vertebrates brought something to the party on Earth that endured—four limbs. Dogs and cats, elephants and tigers, horses and mice, frogs and people—tetrapods every one. Finding a frog with the wrong number of legs should tell us that something has gone seriously wrong in the biochemical processes that are responsible for the induction and patterning of the tetrapod limb—processes that are highly conserved in all the many terrestrial vertebrates that evolved from those early, salamander-like creatures.

4. Studying frog deformities can add to our basic understanding of biology. Learning how teratogenic agents can alter limb growth will provide new insights that may be important in preventing human birth defects and other health problems. Because certain phases of limb development are regulated by hormones and because different species respond differently to subtle chemical signals, an agent that causes limb abnormalities in a frog might cause other problems in other species. Some researchers speculate that although we aren't seeing limb problems in human offspring in places where we see deformed frogs, there

may be other, less visible effects, such as declines in fertility or increases in spontaneous abortions, which are either not usually detected or are being masked by background "noise." At the same time, biologists interested in knowing more about normal limb development learn how the process works by studying abnormal phenotypes.

5. Frogs are important to humans for practical and aesthetic reasons. Biodiversity is contracting at an alarming rate around the planet, and frogs are no exception. No one knows to what extent limb abnormalities affect overall frog populations—but none of these malformed animals appears to survive to reproductive maturity. As with other biota, the precipitous loss of species diversity in frogs threatens to deprive us of knowledge that could be used to fight disease, develop medicines, or detect developmental problems.

Plus, like other wildlife, frogs add to our psychological and emotional well-being. After all, what would a summer night in the country be like without the sounds of frogs calling to one another beneath the stars? **MM**

Minnesota-based writer William Souder wrote the first national stories on the deformed frog outbreak for The Washington Post. His book on the frog problem will be published next year by Hyperion.



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Frog Deformities

Do They Signal a Human Health Risk?

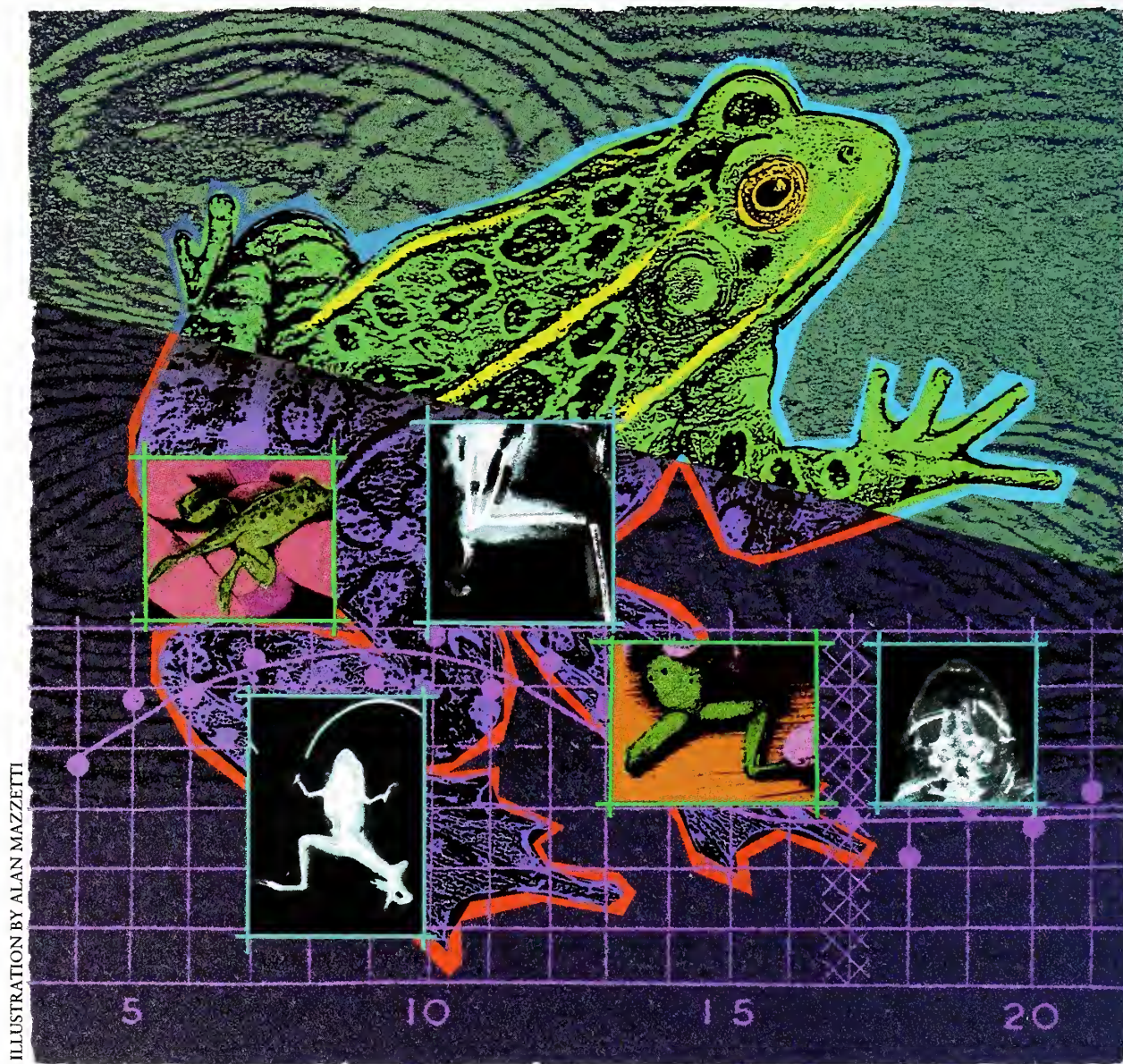


ILLUSTRATION BY ALAN MAZZETTI

The deformed amphibian phenomenon in Minnesota and other areas of the world is a public health issue. But is it an early indicator of a public health threat?

On a school-sponsored nature trip in 1995, a group of students from the New Country School in Le Sueur, Minnesota, explored an area around a farm pond near Henderson looking for the fauna and flora indigenous to the prairie wetland. One thing they found generated national and international attention: a large number of frogs with extra limbs, missing limbs, or other deformities.

The discovery of deformed amphibians in Minnesota and elsewhere has led to a major—and often contentious—research effort. And the widespread public and scientific interest in the issue has resulted in some unusual departures from classical scientific investigation. Not only have data been reported prematurely, but they have been reported without caveats warning of their inherent limitations. Although insufficient data are available to support any particular theory, discussions about possible causes for the frog deformities have been heated.¹

Researchers have focused on two basic questions: Does whatever causes the frog deformities also pose a risk to human health? What do these deformities mean for the health of frog populations and the broader environment? At present, neither question can be answered. Research underway will ultimately provide information that will help us find answers. To date, however, studies have not provided enough information to establish a clear link between deformed frogs and potential risks to human health. The agent—or more likely, agents—responsible for the frog deformities is not yet known.

A Widespread Phenomenon

Deformed frogs have been found in more than half of Minnesota's 87 counties. But deformed amphibians are not just a Minnesota phenomenon. Malformed amphibians have been reported in more than 30 states, three Canadian provinces, and Japan. Other locales will undoubtedly be added to the list. The U.S. Geological Survey recently established a Web site (www.npwrc.usgs.gov/narcam) to serve as a national reporting center for amphibian malformations.

By Hillary M. Carpenter, Ph.D.

Scientists from around the world,



with expertise ranging from ecology to molecular biology, have met several times to examine issues raised by the frog deformities. The purpose of these meetings was to determine what information was available and what data are needed, and to decide how best to examine the problem. The often spirited exchanges at these gatherings raised a number of questions: Is there really a problem? If so, what could be causing it? What mechanisms could explain the many types of deformities observed? Are the malformations a sign of some potential human health risk? And finally, is there a relationship between the rates at which deformities and malformations occur and the decline in amphibian populations?

What Is the Problem?

Initially, some researchers suggested that deformed frogs in natural populations are nothing new. Some scientists have suggested that the deformities observed since 1995 reflect a greater public awareness, which has prompted more efforts to capture and examine frogs. This, in

turn, has led to more reports of frog deformities. In fact, deformed amphibians have been reported periodically in the scientific literature for many years, beginning in the mid-1700s in Europe. The first report of deformed frogs in Minnesota was in 1944 near Alexandria.

Because reproducing frogs lay large masses of eggs, a single instance of habitat change, such as ultraviolet (UV) light or chemical exposure or a parasitic infection, can lead to changes in a large number of individuals. A major problem in evaluating frog deformities is our lack of knowledge about natural variations in frog populations. Unfortunately, scant historical information is available for comparison with current observations. Herpetologists agree that some level of abnormalities is normal; perhaps about 1 percent of the wild frog population may be naturally deformed. These scientists believe, however, that the rates currently observed in Minnesota are very high, indicating that something has altered the way frogs develop.

What Do We Know So Far?

A surprisingly large number of deformities, involving at least 10 frog species, have been reported from environmentally diverse areas of the state. Some of these deformities include missing or extra digits, missing or extra limbs, ectopic limbs (limbs that develop in inappropriate locations), malformed limbs and digits, fusion of limbs, and missing or displaced eyeballs. More recent reports describe a number of internal deformities affecting the reproductive, digestive, and excretory organs. Frogs with multiple deformities have been found in several species, possibly suggesting that multiple developmental pathways are being affected.

Although frogs with limb deformities have received most of the



public attention, internal skeletal malformations have been reported as well. Researchers have observed shortened bones, vertebral abnormalities, and incomplete ossification analogous to some types of metabolic bone disease.

To date, the various malformations have been poorly characterized. Given the diversity of malformations and the fact that a single frog often has multiple deformities, it seems likely that multiple mechanisms are involved. Proposed possible causes include viruses, bacteria, fungi, parasites, UV-B radiation, chemicals, predation, and/or some combination of these factors.

Three Perspectives

Research has focused on three of the potential causes of frog deformities. One group of scientists believes that parasites, particularly trematodes, which form cysts in amphibian limb buds and disrupt development, and predation can explain up to 98 percent of the reported abnormalities in Minnesota's deformed frogs. A study of deformed frogs at a site in California, where the deformities observed were very similar to those seen in Minnesota's frogs, showed that trematodes were the most likely causative agent for the deformities.² If parasites are the cause of Minnesota's deformed frogs, the chance of a health risk to humans is slight. On the other hand, the frogs may have been immunosuppressed as a result of exposure to xenobiotic chemicals—chemicals humans add to the environment, such as herbicides, pesticides, fertilizers, and manufacturing byproducts—and therefore vulnerable to parasites. If this were the case, a similar immunosuppressive effect in humans exposed to those chemicals would be possible.

A second group of scientists sees the most likely cause of the deformities as exposure of developing frogs to environmental chemicals (not necessarily manmade). In this scenario, the exposure disrupts normal developmental pathways and interferes with growth factors and other cell signals. A large body of



literature describes the teratogenic effects of a number of environmental chemicals. In general, however, information about contaminants is lacking at many sites where deformed frogs have been found. Research conducted by the National Institute of Environmental Health Sciences (NIEHS), in collaboration with the Minnesota Pollution Control Agency (MPCA), showed that water from ponds where deformed frogs have been found also caused deformities in frog embryos. NIEHS and MPCA used an in vitro assay called Frog Embryo Teratogenesis Assay-Xenopus (FETAX) as a screening tool.

A team of southern California investigators found chemicals that activated retinoic acid receptors (important in normal development sequences) in in vitro assays in water from a Minnesota pond where a large number of deformed frogs were discovered.³ Another recently published report found that several metabolic products of methoprene, an insecticide used for mosquito control, can cause deformities in frogs.⁴ These materials have also been shown to bind to retinoic acid receptors.

Because of the importance of thyroid hormones in development, a chemical that can disrupt these pathways' normal function might play a role in the development of deformities. NIEHS researchers are currently conducting studies exploring this possibility.

A third group of scientists has focused on the possible importance of inappropriate exposure of amphibian embryos to UV light during development.⁵ Increasing levels of UV light might be a factor in declining amphibian populations as well. Experiments at Oregon State University and the Mid-Continent Ecology Division of the U.S. Environmental Protection Agency in Duluth have shown that UV treatment causes deformities in amphibians. Additional studies have raised the possibility that UV light may alter environmental chemicals, creating agents that cause deformities in frogs.

continued

Where do we go from here?



What Does It All Mean?

The most important task facing the Minnesota Department of Health (MDH) is to determine whether there is a link between laboratory tests and field tests, which could suggest an environmental problem, with consequent possible human effects. To establish such a link, several steps are necessary, as outlined by the National Research Council's risk assessment paradigm.⁶ First, it must be determined whether a hazard for humans exists. Frogs have been described as sentinels for potential environmental problems; however, seeing deformities in frogs doesn't necessarily mean that something similar will happen in people. If parasites are responsible for most of the observed deformities, the level of concern about potential human health problems would be slight. If UV radiation is responsible, there may be a need for greater public awareness of possible effects from UV exposure.

If the deformities have resulted from exposure of frogs or their eggs to chemicals in the water, this could represent a potential for human health effects, assuming the chemicals or compounds are not just toxic to frogs. Chemicals that can interact with retinoic acid and thyroid hormone pathways—and which might be responsible for deformities—may also pose a risk for human health. These pathways have been highly conserved throughout evolution and are very similar among different species. Obviously, the chemical composition of the water must be determined before any judgments about human health hazards can be made. Given the array of deformities seen in frog populations, it seems likely that the deformities in-

volve multiple causes or contributing factors.

Once a hazard has been established, the second step is to determine if there is a potential for human exposure. A chemical or compound that is toxic to a developing frog embryo might not pose a comparable risk for humans. Frog eggs are continuously exposed

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to the material, while nonaquatic species may have little or no exposure. Researchers would also have to resolve toxicokinetic/toxicodynamic issues—whether the way humans handle the chemical is the same as how frogs handle it, for example—before making any judgment about human health effects.

Finally, if there is a proven hazard and chance of human exposure, we must also determine whether exposure would occur at a dose sufficient to cause any effects. Since humans are most likely to be exposed through drinking water, the potential for materials to move from pond water to ground and drinking water would be a critical concern.

Where Do We Go from Here?

As the agencies involved with this issue proceed with their own strategies, they must maintain open communication and foster a cooperative atmosphere to help ensure that public health concerns are addressed as rapidly as possible. For example, the MPCA asked the MDH to test well water samples, using a standard

drinking water screen, from four sites where the water tested positive in the FETAX assay. None of the chemicals found in the samples exceeded current drinking water standards. MDH is also creating a human birth defects information system that would provide useful data for evaluating environmental exposures and reproductive effects. Such systems can provide the accurate and reliable data needed to assess the relationship between exposure and disease.

The deformed amphibian issue is complex. So far, the research has created as many questions as it has answered. Assumptions about possible human health effects are premature; much research must be done before any potential human health effects can be identified. Deformed frogs are clearly a public health issue. Whether the deformities are an indication of actual public health problems remains to be seen.

MM

Hillary Carpenter is an environmental toxicologist with the Environmental Surveillance and Assessment Section in the Division of Environmental Health at the Minnesota Department of Health.

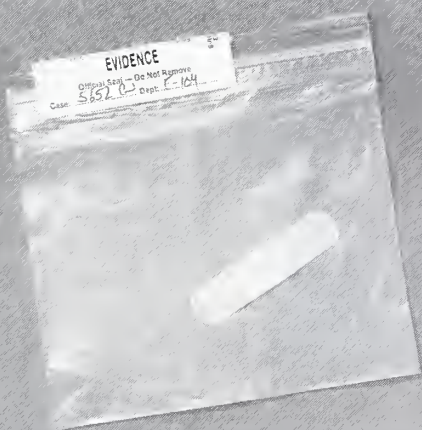


Exhibit A:

Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.

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The Challenges of Medical Marriages

In a talk cosponsored by the MMA and the MMA Alliance, family therapist and researcher William J. Doherty, Ph.D., outlined some stresses unique to medical marriages.

Lee J. Engfer

Judging from some of the literature on the subject, medical marriages are a veritable land mine of potential problems. According to "The Medical Marriage: A Couple's Survival Guide," physicians and their spouses suffer increased incidences of drug abuse, alcoholism, depression, and suicidal thoughts. Authors Wayne and Mary Sotile warn, "Partners in a medical marriage tend to cooperate in normalizing a lifestyle that sanctifies workaholicism, competitiveness, being controlling when dealing with others, doing and thinking too many things at once, and generally living in a self-focused haze of hurry sickness."

But wait—it's not *that* hopeless, says William J. Doherty, Ph.D., a therapist and professor in the Department of Family Social Science at the University of Minnesota, who spoke about medical marriages at the Minnesota Medical Association's Annual Meeting in October. Cosponsored by the MMA and the MMA Alliance, Doherty's discussion started with some good news: Physicians have a lower divorce rate than other people, including lawyers and other high-status professionals. When it comes down to it, medical marriages are not that different from other marriages.

Dianne Fenyk, president of the MMA Alliance, who has been married to John R. Fenyk, M.D., for more than 30 years, appreciated Doherty's message. "You feel sorry for yourself sometimes, being in a medical marriage, but then you realize that many marriages are like that," says Fenyk, who is clinic manager for her husband's practice.

Of course, every marriage faces stresses, but medical marriages have some unique challenges. These include the long hours and heavy workload of a medical career; unpredictable schedules; high debt after medical school; the emotional drain of dealing with patients, colleagues,

managed care, and the legal system; the erosion of autonomy and individual decision-making in medical practice; and a physician's open boundaries. "People can call a doctor anytime," Doherty told his MMA audience. A physician's most intense relationships may be at work, leaving little energy at the end of the day. "At home, you want to relax, you want a less intense environment," Doherty said. From your spouse's perspective, you've "given at the office."



Dionne Meisterling has been married for less than a year to Michael Meisterling, M.D., a resident at Hennepin County Medical Center, but she already understands some of these challenges. "It was comforting to realize that many couples have the same issues as we do, and to hear suggestions for ways to resolve those issues," she says. "Issues like being in the middle of a romantic dinner and hearing the pager go off, or trying to plan a ski trip without knowing the call schedule until two weeks ahead."

For Diane Dahl, M.D., and her husband of 14 years, Tom Dunkel, M.D., being absorbed in

their work contributed to the collapse of their first marriages. Dahl and Dunkel have worked hard to surmount the added challenges of a dual-physician household. Dahl is medical director of the University of Minnesota Department of Family Practice and teaches in the Medical School and family practice residency program; Dunkel is an internist at St. Paul Internists and president of the Ramsey Medical Society.

"Unfortunately, physicians have a lot of autonomy in their training and their thinking process, and they don't always stretch across the boundaries to incorporate another person in their thinking process," Dahl says. She cites a recent example of how both she and her

husband made assumptions about how they were going to rearrange the furniture in a room in their house. They were able to work it out by listening to each other's ideas.

Women physicians may carry an additional burden, since often they cover the "second shift" at home—assuming the primary responsibility for household and child-rearing duties. This can be true for women who are married to physicians but have their own careers as well.

"I think there is still an expectation out there that doctor's wives do not want to have a career," says Dionne Meisterling, who is a chemical engineer at Cargill, Inc. "This leads to less support for women to continue their careers after they get married to a doctor, thereby reducing the number of role models for young women. It is a cycle that cannot be broken until more doctors' wives find ways to develop their careers alongside their husband's career."

In his presentation, Doherty offered a few suggestions for managing stress, such as getting away together and creating nurturing, predictable rituals. He also urged married couples to spend 10 to 15 minutes talking every day, with no interruptions.

Diane Dahl and Tom Dunkel have been doing just that for years. "Communication has to be eye-to-eye, with no secondary things going on," Dahl says. She and Dunkel also plan activities together. That might be working together on their perennial gardens, spending a weekend away from home, traveling, or visiting their grown children, who live in other states. In addition, Dahl recently lightened her work schedule to "only" 50 hours a week. "It's practically a vacation," she says.

The Meisterlings spend time together running, biking, or working out. "We make it a priority to do these activities, which not only gives us an opportunity to spend time together but helps us to stay fit, especially on those days when a workout is the last thing you want to do," Dionne says.

As in any marriage, the give-and-take must be balanced, Doherty said. Each spouse should be able to get and give support. In the medical problem-solving model, physicians are usually inclined to give advice. But most of the time, he said, your spouse just wants you to listen.

MM

Lee Engfer is an associate editor of Minnesota Medicine.

FOR FURTHER READING

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The Combined Internal Medicine/Pediatrics Residency

U of M Graduates Fill a Growing Need

The Med/Peds residency program at the University of Minnesota has become one of the largest in the nation, turning out graduates particularly well suited for primary care practice.

Ann B. Sidwell, M.D., and Deepak M. Kamat, M.D., Ph.D.

Nationwide, the combined internal medicine and pediatrics (Med/Peds) residency program is the fastest growing primary care discipline. The program is partially funded by Congress through the Primary Care Promotion Act of 1997. A recent survey showed that 70% of Med/Peds physicians in the United States have entered primary care practices.¹ Many Med/Peds physicians practice collaboratively with other primary care physicians, a synergy that enhances practice efficiency. Recently, health care systems in Minnesota have shown a strong interest in hiring Med/Peds physicians.

The Internal Medicine and Pediatrics (Med/Peds) residency program at the University of Minnesota, now in its 10th year, is a combined four-year residency program. Graduates train for 24 months each in internal medicine and pediatrics. The program is partially funded by the state of Minnesota (MinnesotaCare appropriation for primary care physician training). The program curriculum includes core rotations in both internal medicine and pediatrics (see the table). After 48 rigorous months, the resident is eligible for board certification in both specialties. These dual-boarded physicians have the same depth of knowledge as their internal medicine and pediatrics colleagues; the certifying exam pass rates for Med/Peds graduates and internal medicine and pediatrics graduates are the same.² The Med/Peds residency is regulated jointly by the American Board of Internal Medicine and the American Board of Pediatrics.³

Since these boards endorsed the concept of the combined program in 1967, the number of programs and graduates nationwide has grown quickly. As shown in the figure, only nine medical students were placed in five residency programs in 1980; by 1997, there were 456 intern positions in 106 Med/Peds residency programs.^{4,5} The first Med/Peds class at

the University of Minnesota consisted of six residents; currently, there are 48 residents. In 1998, more than 80 applicants interviewed for 12 first-year positions in the University of Minnesota's combined program.

With weekly continuity clinic experience (residents follow the same patients for the duration of their training), Med/Peds residents develop the skills necessary to follow primary care patients from infancy through old age, becoming well versed in child health maintenance, adolescent counseling, and adult preventive care. Residents also work with pediatric and internal medicine subspecialists in outpatient and inpatient settings. All Med/Peds residents spend at least four weeks in adult cardiology, six months in intensive care, and three months in emergency medicine. With their extensive experience in intensive care, Med/Peds graduates can resuscitate a newborn baby in the delivery room, take care of a child in the pediatric critical care unit, and manage a geriatric patient in the cardiac or medical critical care unit.

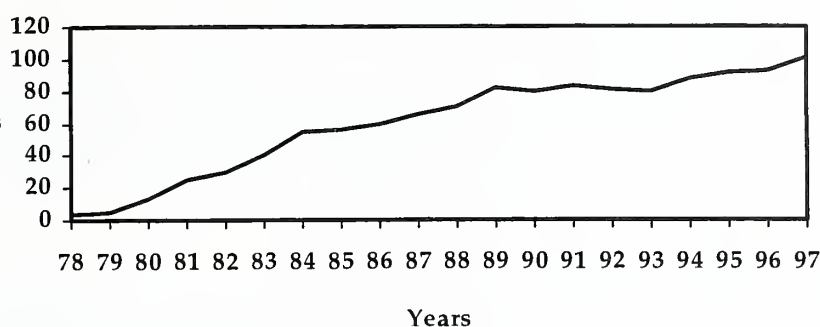
Med/Peds physicians are trained to provide routine as well as complex and family-oriented care in both outpatient and inpatient settings. They can function not

Table

Internal Medicine/Pediatrics residency program curriculum

Pediatrics		Internal Medicine	
General pediatrics	10 months	General medicine	12 months
Subspecialty pediatrics	6 months	Subspecialty medicine	8 months
Emergency medicine	1 month	Emergency medicine	2 months
Neonatal intensive care	4 months	Adult critical care	2 months
Pediatric intensive care			
Newborn nursery	1 month		
Adolescent medicine	1 month		
Developmental disabilities	1 month		

Growth of Med-Peds Programs



FIGURE

only as primary care providers but also as consultants to other primary care providers. Most Med/Peds physicians practice collaboratively with internists, pediatricians, and family physicians,⁶ which can enhance patient satisfaction by providing on-site consultations. Most Med/Peds physicians take care of hospitalized adults and children and share call with their colleagues in internal medicine and pediatrics.

A 1993 survey showed that 68% of Med/Peds graduates had entered primary care practice; 85% of these physicians were caring for children as well as adults.⁷ Twenty-one percent of the graduates had completed subspecialty training; of those, 50% were seeing both children and adults in their practices. Seven percent of the graduates had joined emergency departments, and 4% had entered public health services.⁷ A similar survey in 1995, using the databases of the American Board of Internal Medicine and the American Board of Pediatrics, showed that more than 70% of the 1,500 Med/Peds graduates across the country had entered primary care practice—54% in community offices, 20% in hospitals, and 7% in emergency departments.¹ In Minnesota, 27 of 37 Med/Peds graduates had entered primary care practice; 12 of them in Minnesota. Med/Peds graduates interested in subspecialization may choose among any of the fellowships available to graduates of the regular internal medicine and pediatrics residency programs.

The combined Med/Peds program at the University of Minnesota has become one of the largest programs in the nation, and Minnesota's health systems have shown great interest in our graduates. In July 1998, six of 12 Med/Peds graduates were hired by the Fairview Eagan Clinic. The Fairview University Medical Center and other clinics in Minnesota are also hiring Med/Peds graduates. Increasingly, our graduates are finding opportunities to serve Minnesota's communities. **MM**

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Ann Sidwell is a Med/Peds physician at Fairview Eagan Clinic. Deepak Kamat is program director of the combined internal medicine and pediatrics residency program at the University of Minnesota.

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Community-based Screening for Childhood Lead Poisoning

Identification of Risk Factors and Susceptible Populations in Duluth

Michael A. Bronson, M.D., Robert L. Tilden, M.P.H., D.P.H., and Colleen M. Renier, B.S.

ABSTRACT

The purpose of this matched case-controlled study was to identify local risk factors and susceptible populations for childhood lead poisoning in Duluth, Minnesota. We mailed questionnaires to the parents of 20 children with known elevated capillary lead levels ≥ 10 $\mu\text{g}/\text{dL}$; 76 age-matched controls had capillary lead levels < 10 $\mu\text{g}/\text{dL}$. The study identified these risk factors for elevated capillary lead levels in children: not attending daycare, having nonwhite parents, living in rental property in central Duluth, and moving with family three or more times in the previous five years. We conclude that these risk factors are related to socioeconomic factors. Minority children and children living in poverty in the Duluth area should be screened for lead poisoning according to the Centers for Disease Control and Prevention screening guidelines for high-risk lead exposure.

In 1991, the Centers for Disease Control recommended universal screening of children for lead poisoning. At the same time, the CDC lowered the community intervention level from 25 $\mu\text{g}/\text{dL}$ to 10 $\mu\text{g}/\text{dL}$ and recommended using a lead exposure risk assessment questionnaire to identify children at high risk for lead poisoning so they could be screened earlier and more frequently. It also recommended that local communities collect data on sources of lead in the community, exposure patterns, and high-risk populations to develop a community-based risk assessment questionnaire as well as locality-specific programs for screening and prevention.¹

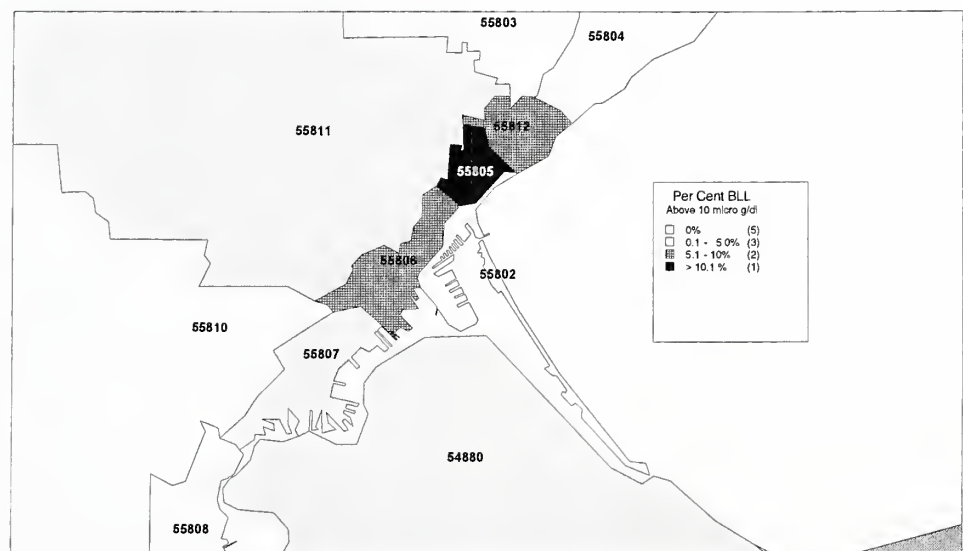
A study of 493 Duluth-area children seen for well-child exams in late 1992 and early 1993 found that children labeled as high risk by the CDC risk assessment questionnaire did not have an elevated capillary lead level (≥ 10 $\mu\text{g}/\text{dL}$) compared with those labeled low risk. However, as illustrated in the figure, the child's residence (defined by zip code) was predictive of risk for elevated capillary

lead levels. Using location of residence as a screening device would have correctly identified 75% of children with capillary lead levels ≥ 10 $\mu\text{g}/\text{dL}$ and 89% with levels of 15 $\mu\text{g}/\text{dL}$.² This study and others demonstrate that identification of risk factors is important because the CDC risk assessment questionnaire is not universally effective in identifying at-risk children.³⁻⁶

The purpose of this study was to further define the risk factors and susceptible populations for childhood lead poisoning in the greater Duluth area to aid in the development of a community-based screening program.

POPULATION AND METHODS

From December 1992 through March 1993, 493 children aged 4 months to 69 months who had been seen consecutively for well-child exams at the Duluth Clinic's Pediatric Department, or whose parents requested blood lead levels, were entered into the study. Their parents (or other caregivers) completed a general questionnaire regarding demographics and were profiled using the CDC risk



FIGURE—Percent blood lead levels shown by zip code areas.

Table

Lead Poisoning Study Survey Results

Factor	Case #	(N=16) %	Control (N=68) #	%	p value	Odds Ratio	95% Confidence Intervals
Child's age at exam							
<12 months	3	18.8	24	35.3	0.315*	1.00	—
12 - 23 months	8	50.0	32	47.1		2.00	0.48 - 8.35
24+ months	5	31.3	12	17.6		3.33	0.68 - 16.35
Child's sex							
Male	8	50.0	45	66.2	0.228*	1.00	—
Female	8	50.0	23	33.8		1.96	0.65 - 5.89
Exhibits pica							
Yes	1	7.7	8	12.5	0.527†	1.00	—
No	12	92.3	56	87.5		1.71	0.20 - 15.02
Unknown/Missing	3		4				
In daycare							
Yes	4	28.6	44	66.7	0.008*	1.00	—
No	10	71.4	22	33.3		5.00	1.41 - 17.76
Missing	2		2				
If yes, daycare setting							
Private home	3	75.0	32	74.4	1.000†	1.03	0.10 - 10.97
Public	1	25.0	11	25.6		1.00	—
Missing	0		1				
Respondent's (parent) age							
<25 years	4	28.6	6	9.0	0.065†	4.07	0.97 - 17.01
25+ years	10	71.4	61	91.0		1.00	—
Missing	2		1				
Respondent's (parent) sex							
Male	0	0.0	5	7.5	0.582†	1.00	—
Female	14	100.0	62	92.5		Undef.	—
Missing	2		1				
Respondent's (parent) race							
White	9	64.3	65	97.0	0.000†	1.00	—
Non-White	5	35.7	1	1.5		36.11	3.78 - 345.16
Missing	2		2				
Respondent's education level							
High school grad or less	4	28.6	9	13.4	0.157†	2.58	0.66 - 10.00
Post-high school	10	71.4	58	86.6		1.00	—
Missing	2		1				
No. of family moves 1987 to 1992							
<3 times	5	33.3	60	88.2	0.000†	1.00	—
3 or more times	10	66.7	8	11.8		15.00	4.08 - 55.18
Missing	1		0				

Table continued

Lead Poisoning Study Survey Results

Factor	Case (N=16)		Control (N=68)		p value	Odds Ratio	95% Confidence Intervals
	#	%	#	%			
Location of home at exam							
Central Duluth (55805, 55806)	11	68.8	15	22.1	0.001†	7.77	2.34 - 25.87
Greater Duluth	5	31.3	53	77.9		1.00	—
When was housing built							
Before 1950	8	72.7	39	67.2	0.460*	1.00	—
1950 - 1978	3	27.3	12	20.7		1.22	0.28 - 5.33
After 1978	0	0.0	7	12.1		Undef.	—
Unknown/Missing	5		10				
Own home							
Yes	5	35.7	49	74.2	0.008†	1.00	—
No (rent)	9	64.3	17	25.8		5.19	1.52 - 17.65
Missing	2		2				
If rent, type of housing							
Government housing	3	42.9	3	17.6	0.307†	4.88	0.59 - 40.26
Private housing	4	57.1	14	82.4		1.00	—
Unknown/Missing	2		0				

* Uncorrected Chi Square

† Fisher's Exact Test

assessment questionnaire. Data were compiled on age, sex, and residence by zip code. Following the CDC risk assessment questionnaire, the children were labeled low risk or high risk for high-dose lead exposure.¹

Capillary lead levels were measured at the physician's discretion with parental permission. Specimens were obtained after careful washing and cleansing of the child's hands with an alcohol-soaked sponge. Capillary blood lead levels were determined by atomic absorption spectrometry by SmithKline Beecham Labs in New Brighton, Minnesota. We reported results in $\mu\text{g}/\text{dL}$ and analyzed them in relation to age, sex, location of residence, and CDC questionnaire risk level. The results of this study have been reported in the *American Journal of Public Health*.²

Two hundred thirty-one children from the Duluth area who had capillary lead levels measured comprise the study's sample universe. Each of the 20 (8.6%) children who had elevated capillary lead levels $\geq 10 \mu\text{g}/\text{dL}$ were matched with approximately

four control children of the same age who had capillary lead levels $< 10 \mu\text{g}/\text{dL}$ and were tested at approximately the same time. We developed a questionnaire to compile data on demographics of the parents and other caregivers, as well as attendance at daycare, environmental exposure to lead, family housing situation, and number of family moves between December 1987 and December 1992. We mailed the survey with an introductory letter in June 1995 and a follow-up letter was mailed a month later. Those not responding to either letter received a follow-up telephone call from a trained interviewer. Data collection was completed by September 1995, with questionnaires returned from 16 study group participants and 68 controls. There was no significant difference between these two groups with regard to age and sex.

Data were entered into a database program after the forms had been manually edited. We checked a 20% subsample of the entries against the original forms to ensure that no

mistakes had been made during data entry. The statistical tests employed in the analysis included Pearson chi square and logistic regression.^{7,8} We considered a probability of less than 0.05 significant.

RESULTS

Responses to the questionnaire items are shown in the table. The responding parent was usually a female, and individuals in the study group tended to be younger and less educated than control parents. However, the differences were not significant at the 0.05 level. Among the study group, 35.7% classified themselves as Native American; no Native Americans were in the control group. It is estimated that Native Americans comprise 2% to 4% of the Duluth area population; the 1990 census reported 2,095 Native Americans living in the city. Overall, five of six (83.3%) of those in the study who classified themselves as nonwhite were Native American. Study participants were 36.11 times more likely to label themselves as nonwhite than controls.

Others helping to care for the study children tended to be male. Racial differences between the study group participants and controls were similar to those found among responding parents. Children in the study group were five times less likely to have attended daycare during the study period than controls. Among those who attended daycare, we found no significant difference between the study group and control group as to whether the daycare was in a private home or a public facility.

Those in the study group were 15 times more likely to report that their family had moved three or more times in the five years before the capillary lead testing, and they were more than five times more likely to rent, rather than own, their home compared with controls. Among those who rented, we found no difference between the study group and controls as to whether the rental unit was government subsidized or privately owned. In addition, the study group members were almost eight times more likely to be living in central Duluth (zip codes 55805 and 55806) than elsewhere in the area compared with controls. We found no difference between the study group and controls in the reported age of housing occupied. (Central Duluth is the oldest part of the city, but much of the city's housing was built before 1960.)

Finally, there was no difference between the study and control groups in reported household occupations or whether the child had a history of pica.

A forward stepwise logistic regression analysis selected the number of times the family had moved in the last five years, the respondent's race, and the respondent's age as significant predictors. The resulting model had a specificity of 98.4%, a positive predictive value of 87.5%, and a negative predictive value of 90.0% in identifying risk for elevated blood lead levels.

DISCUSSION

Among this study's limitations are its small subject population and a case-match design. In addition, the subjects were tested during a single season of the year, and previous studies suggest there is a seasonal variation

to risk for elevated blood lead levels.⁹ Despite these limitations, the results are consistent with other studies' findings and suggest that demographic and socioeconomic factors play a significant role in predisposition to lead poisoning. We also conclude that these factors help define the populations at increased risk for lead poisoning.

Although no studies on the prevalence of elevated blood lead levels in Native Americans exist, data from the National Health and Nutrition Examination Survey III (NHANES III) show that nationally, minorities have a higher prevalence of elevated blood lead levels as compared with whites.¹⁰ In a study of Massachusetts children, communities with a higher proportion of black children were at greater risk for childhood lead poisoning,¹¹ and a study of Rhode Island children found higher geometric mean blood lead levels in members of racial/ethnic minority groups.¹² Another study, of a rural county in upstate New York, found children of migrant farm workers were at increased risk for lead poisoning,¹³ and a study in urban Santa Clara County, California, found Mexican-born Hispanic children to be at increased risk.¹⁴

In this study, the risk factors we identified for elevated capillary lead levels in children included living in central Duluth, living in rental property, and moving to a new home three or more times in the previous five years. These risk factors are probably interrelated and reflect family income level. Central Duluth is an area of low-income housing with a high percentage of rental units. Presumably, ability to own a home is related to income. In two studies, renting and low rates of home ownership were found to be risk factors for lead poisoning. One of the studies also found an association between lead levels ≥ 10 $\mu\text{g}/\text{dL}$ and the family moving two or more times since the child was 6 months old.^{11,13} In addition, our unexpected finding that attending daycare was a protective factor is probably related to a family's ability to afford daycare. A lower prevalence of elevated blood lead levels at both the ≥ 10 $\mu\text{g}/\text{dL}$ and

≥ 15 $\mu\text{g}/\text{dL}$ level was discovered in children who regularly spent time at a daycare or a babysitter's home.¹³ Both the Massachusetts and Rhode Island studies established an association between poverty and lead poisoning.^{11,12} Conversely, a low prevalence of elevated lead levels was found in children of an employed, HMO-insured population.⁶

CONCLUSION

Our results suggest that, in Duluth, factors related to poverty increase risk for childhood lead poisoning. Incorporating socioeconomic and demographic questions into the CDC risk assessment questionnaire—asking about ethnic origin, daycare attendance, renting or home ownership, zip code identification, and number of family moves in the previous five years—would increase its effectiveness in identifying children at high risk for lead exposure. We further conclude that screening all children who qualify for government-assisted health care programs based on income would be appropriate. Finally, we believe that risk for childhood lead poisoning in Native American children deserves further study. **MM**

ACKNOWLEDGMENTS

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Michael Bronson is a pediatrician at the Duluth Clinic. Robert Tilden is senior scientist in the Division of Education and Research at St. Mary's/Duluth Clinic Health System, and Colleen Renier is a statistical programmer/analyst in the Division of Education and Research at St. Mary's/Duluth Clinic Health System.

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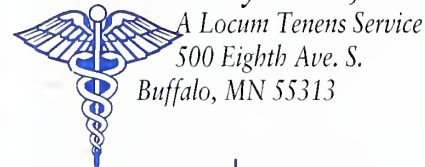
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Physician Licensing and the Americans with Disabilities Act

An Update on the Minnesota Board of Medical Practice

Changes to the Minnesota BMP's licensure application don't go as far as some physicians had hoped in ensuring physicians due process protections.

Christina F. Rich, J.D.

Debate continues over potentially discriminating questions on the Minnesota Board of Medical Practice's licensure and renewal application forms. Last fall, the board voted to adopt most of the recommendations of its Task Force on Physician Impairment, convened to address the issue. But some physicians are concerned that the board's decision to reject a key recommendation of the task force leaves a gaping hole in both protection and fair treatment of physicians who have a history of a diagnosed disease that may not impair their practice.

The issue of appropriate treatment for impaired physicians has been ongoing for both the Minnesota Board of Medical Practice (BMP) and the Minnesota medical community. Minneapolis physician Steve Miles, M.D., the Minnesota Psychiatric Society, and others have alleged that the board's policies regarding physicians with mental illness are both stigmatizing and in violation of the Americans with Disabilities Act.^{1,2} In light of these concerns, the BMP created a task force in 1997 to review its licensure and renewal application.

THE ADA

The Americans with Disabilities Act³ was passed in 1990 to establish a clear and convincing prohibition of discrimination against individuals with physical or mental disabilities. The act encompasses numerous areas in which individuals with disabilities

may encounter discrimination, including employment, housing, public accommodation, education, transportation, communication, recreation, institutionalization, health services, voting, and access to public services.

Title II of the ADA⁴ prohibits state and local governments (including entities that are owned by or that serve those governments) from excluding a disabled individual from any government benefit, service, or program, such as physician licensure or license renewal. Title II prohibits unnecessary inquiries into individuals' disability status and prohibits public entities from placing unnecessary burdens on disabled individuals obtaining service or benefits. The Minnesota BMP and other state medical licensing boards have faced scrutiny relating to the questions they ask on their licensing applications. Physician Steve Miles, a bioethicist at the University of Minnesota, brought public and physician attention to the issue in articles alleging that some BMP policies violate the ADA by requiring applicants for licensure or renewal to disclose disabilities without ascertaining whether the disability hampers the applicant's ability to practice medicine with reasonable skill and safety.^{1,5} Another alleged ADA violation involves the board's practice of requiring the release of an applicant's entire medical record relating to mental health treatment. Proponents for change argue that

only the medical records necessary to determine fitness and ability to practice medicine should be reviewed.

THE TASK FORCE'S CHARGE

The task force, composed primarily of physicians practicing in Minnesota and other states, was charged with answering the following questions:

1. How can the board best identify individuals who may be unable to practice medicine with reasonable skill and safety as a result of physical and/or mental illness?

2. Once these individuals are identified, what additional information/evaluation is necessary in order to protect the public?⁶

The task force reviewed the questions on the current licensure application related to medical conditions and recommended changes that would protect the public and be consistent with the Americans with Disabilities Act. The overarching goal was to remove disincentives for licensees to seek help for potentially impairing illnesses and to remove disincentives for them to self-report those conditions.⁶

SUMMARY OF RECOMMENDATIONS

In a report submitted to the BMP in July, the task force recommended changes to the board's licensure application and renewal forms as well as improvements in communication with applicants. The task force also

recommended that the board make greater outreach efforts regarding licensure confidentiality and physician support programs.

LICENSURE AND RENEWAL APPLICATION MODIFICATIONS

The task force recommended that the board create three categories of questions on the licensure and renewal application:

1. **Eligibility:** questions relating to education, training, and other public information.

2. **Nonprotected Safety and Competency:** questions regarding the applicant's ability to practice medicine, such as whether the applicant has been denied a license to practice medicine in another state or whether hospital privileges have ever been revoked. This data would not be private.

3. **Protected Safety and Competency:** questions involving the applicant's mental and physical health and participation in chemical dependency or mental health treatment programs. Responses to these questions would remain private or confidential even after the applicant is licensed. Private data is accessible only to the subject of the data, not to the public. Confidential data is not accessible to the subject or the public.

The task force also recommend-

ed that applicants who are participating in the Health Professionals Services Program* be permitted to skip certain questions requiring disclosure of illness. Those questions seek to discover if physicians need physical and/or psychiatric medical care, but the task force argued that the public's need to know about a physician's impairment is lessened if the physician is being monitored and receiving successful treatment.

One of the task force's key recommendations was that the board modify the application question that asks if an applicant has been diagnosed with or treated for bipolar disorder, schizophrenia, paranoia, or any other psychotic disorder. The task force recommended changing the focus of the question from diagnosis to impairment. Specifically, rather than asking if an applicant has been diagnosed with a psychotic disorder, the question would ask whether the applicant has been admitted to a hospital or inpatient facility in the last five years for a physical or mental

*The Health Professionals Services Program is a confidential program, authorized under Minnesota Statutes §214.31, to monitor treatment of regulated health professionals who may be unable to practice with reasonable skill and safety if their illness is not properly managed.

condition involving the central nervous system. Such a question would identify physicians who may be unable to practice due to an impairment, rather than singling out those with a specific diagnosis, regardless of ability to practice. Furthermore, this language would identify physicians who may be impaired but have not been diagnosed with a particular disease.

The task force argued strongly that the board must move away from diagnosis-based disclosure to disclosure based on conduct. Task force members said that the board's current licensure process penalizes physicians for disclosing a diagnosis.⁶ Some Minnesota physicians share this sentiment.⁵ The task force recommended that whenever possible, providers should be disciplined for conduct and not for their illness.

One task force member did not agree with this recommendation, however. This member felt that closely monitoring the individual at the earliest possible stages would be most beneficial, rather than waiting until symptoms necessitated hospitalization.

At a meeting last August, the BMP's Public Policy Committee decided that the proposed change to the question about psychotic disorders should be debated by the full board. At its September meeting, the board voted to reject this recommendation, arguing that an episode requiring hospitalization could possibly occur while a physician was working and may even involve patient contact, and that the current question is intended to reach individuals before such an event occurs.⁷

ACCEPTED RECOMMENDATIONS

The BMP voted to accept the remaining task force recommendations. One is that the board develop a clear, nonthreatening cover letter to accompany the application form. This letter would explain in "nonlegalistic" language the questions that are public and those that are confidential. Another recommendation is that the BMP work with the Minnesota Medical Association and the Minnesota Psychiatric Society to educate

BMP continued on page 43

The Task Force on Physician Impairment

Joseph Bloom, M.D., a psychiatrist at the Oregon Health Sciences University School of Medicine.

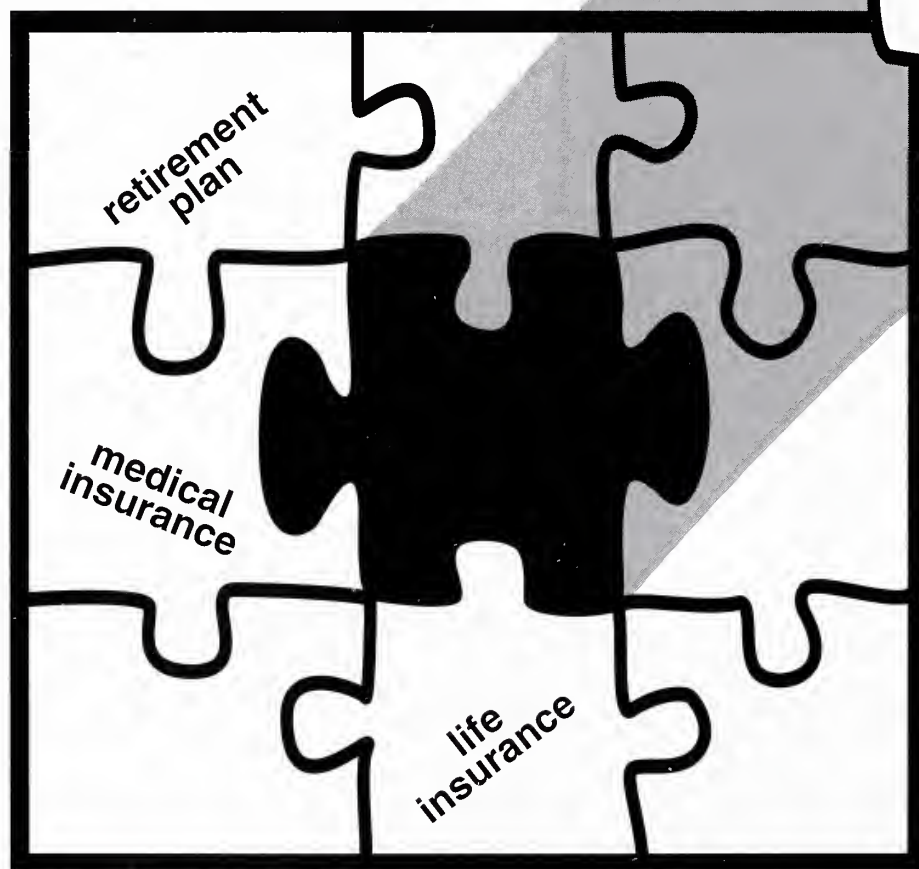
Donald Kjome, M.D., a family practitioner in Glencoe, Minnesota.

Richard Lentz, M.D., a consultant in psychiatry at Park Nicollet Clinic in Minneapolis, and a clinical professor with the Department of Psychiatry at the University of Minnesota.

Barbara Schneidman, M.D., M.P.H., director of the Division of Medical Education, Liaison and Outreach for the American Medical Association, and associate professor of Clinical Psychiatry and Behavioral Sciences at Northwestern University Medical School in Chicago.

John Ulwelling, facilitator, executive vice president of the Foundation for Medical Excellence, which provides educational programs and research projects for physicians throughout the Pacific Northwest. He was executive director of the Oregon State Board of Medical Examiners from 1977 to 1994.

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ANNOUNCEMENTS



Delegates Set Policy at AMA I-98

The Minnesota delegation to the AMA is chaired by A. Stuart Hanson, M.D. Delegates attending the 1998 AMA Interim Meeting in Honolulu included Robert D. Christensen, M.D.; Frank J. Indihar, M.D.; Carolyn McKay, M.D.; Audrey M. Nelson, M.D.; Ben P. Owens, M.D.; and Andrew J.K. Smith, M.D. Alternate delegates are Raymond G. Christensen, M.D.; Kenneth W. Crabb, M.D.; Lyle Munneke, M.D.; Thomas L. Peyla, M.D.; Sally J. Trippel, M.D.; and John Van Etta, M.D.

Wood Is President/CEO of Mayo Foundation

Michael B. Wood, M.D., was elected president and chief executive officer of the Mayo Foundation. Wood, an orthopedic surgeon specializing in hand surgery, will assume his new post January 1.

MMA Resolutions Well-Received at AMA Interim Meeting

A number of resolutions from the Minnesota delegation—including several public health proposals—were warmly received at the American Medical Association 1998 Interim Meeting in Honolulu last month.

- The MMA resolution calling on the AMA to support legislation banning smoking in all workplaces, a measure designed to protect employees from the cancer-causing byproducts of secondhand smoke, was placed on the consent calendar and adopted without debate.

- An MMA measure asking the AMA to research the need for a national initiative aimed at addressing the health care needs of young adults was adopted in a modified form. “The data shows that most young adults, especially young males, are medically underserved,” said Minnesota delegate Frank J. Indihar, M.D. “We want to bring them into the health care system.” The resolution’s second resolve, calling on the AMA to develop a public information campaign about health risks common to young adults “if the results of this research show a need” for such a campaign, was deleted in part due to its \$500,000 fiscal note.

- The Minnesota resolution on violence prevention in the health care workplace was adopted with minor changes. Testifying before Reference Committee D, Minnesota delegate Carolyn J. McKay, M.D., referred to the “proverbial thrown scalpel” and asked the AMA to help physicians address this issue. Some delegates also discussed the risk health care workers face from violent patients. Under the language approved

Minnesota Physicians Prominent at AMA I-98

Several Minnesota physicians were particularly prominent in shaping policy at the American Medical Association 1998 Interim Meeting in Honolulu in December. One Minnesota Medical Association member, Mayo Clinic rheumatologist Audrey Nelson, M.D., was instrumental in helping foster sweeping, historic changes in AMA operations. See the article on page 35.

by the HOD, the AMA will encourage all health care facilities to adopt policies to reduce and prevent workplace violence and abuse, and to develop policies to manage reported occurrences of workplace violence and abuse.

Minnesotans Lead Tobacco Debate

Another public health discussion to which the Minnesota delegation contributed heavily was the debate over the recent Master Settlement Agreement (MSA) between the tobacco industry and 46 state attorneys general. Many physicians—including those from the MMA—feel strongly that the MSA didn’t go far enough. “We are disappointed that the MSA will not bring other states nearly as much as Minnesota received,” MMA delegate A. Stuart Hanson, M.D., testified.

Yet delegates from other states, such

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VIEWPOINT

Judith F. Shank, M.D.
MMA President



What can we reasonably expect our Minnesota Medical Association to do for us?

Many of us are unhappy with the changes taking place in medicine: more paperwork, lower reimbursement, difficulty gaining approval for the care our patients need, unfair taxes, burdensome regulations.

Some of my colleagues ask: Why doesn't someone do something about it?

Where's the MMA?

I understand the frustrations that give rise to these comments. But I'm also keenly aware that if we physicians are going to shape the future of medicine, we have to stick together. Alone we have little clout. Especially in comparison with large health plans and various groups that come to the Capitol to lobby for their members.

It's important to understand what organized medicine can and cannot do for us.

The MMA can amplify our voice nine thousandfold. At the state legislature the MMA won repeal of the surcharge on our medical licenses, fought off attempts to extend the medical malpractice statute of limitations, and protected the quality of

medical care by opposing attempts to give nonphysicians the authority to practice medicine. These are ongoing battles that can't be won by individual physicians or clinics acting alone. We need the MMA.

At the national level, the MMA can bring Minnesota concerns to the AMA. Read the front-page article in this issue of *News & Views* to find out how influential Minnesota physicians are in our national organization. Our involvement makes a real difference. The most recent version of Medicare's evaluation and management documentation guidelines is a good example. The guidelines are not ideal, but they're significantly improved.

We don't have perfect outcomes. We have to work with others and sometimes must settle for a compromise. But think of how different our practice would be without the MMA. Remember the Regulated All Payer Option (RAPO)?

The MMA has done a lot for our profession, but it is not all-powerful. What *can't* organized medicine do for you? Our MMA cannot defend you as an individual in a court of law, or get you back in a plan after you have been excluded, or negotiate on your behalf for a better contract. Antitrust and labor laws prevent the

MMA from acting as a trade union and negotiating for better salaries.

Our MMA can and does, however, work for policies that benefit all Minnesota physicians and their patients. We fight against burdensome laws and regulations. We are in dialogue with health plans on reimbursement and administrative issues. We work to clarify legal issues and protect physicians from liability. Currently MMA staff is seeking to determine whether physicians will be at risk of liability if they complete the state's abortion complication reporting form.

Our MMA often can't solve an individual physician's problems. But a host of individual problems translates into a policy issue. MMA staff are analyzing the results of a survey to determine whether delayed payments are a problem for many physicians. They're also trying to determine whether denial of payment for procedures that were preauthorized is a common concern.

The power of the MMA comes from its broad base of 9,600 members and its reputation for supporting policies that preserve high quality care in Minnesota. We need to convince our colleagues of the importance of being a member. ■

Nelson Leads Historic Effort to Change AMA

Minnesota physician Audrey Nelson, M.D., has helped foster historic changes in the way the AMA functions.

Nelson served as chair of the Ad Hoc Committee on Structure, Governance and Operations. After extensive and sometimes heated debate, the AMA House of Delegates approved—with only minor changes—the task force's recommendations, which are detailed in a 36-page report. Nelson said she is happy with the HOD's action.

One controversial amendment to the bylaws changes the path of advancement for AMA leaders, creating a two-track system leading either to AMA president or to chair of the AMA Board.

Historically, the AMA board chair has been elected to president-elect immediately following his or her term. Nelson's task force argued that the "skill sets" needed for the two offices are quite different: The board chair oversees AMA operations while the president serves as the key AMA spokesperson. Yet there is considerable overlap in the two positions, and the task force sought to more clearly delineate the roles—specifically, to depoliticize the board chair role. After much debate,

the HOD voted to require a delay of one year before the board chair can succeed to the position of president-elect.

A proposal to limit the number of public appearances made by AMA board members was cut from the final resolution. The committee contended that the current system of reimbursement rewards AMA board members for making appearances rather than concentrating on oversight and leadership of the organization. This raised serious concerns following the 1997 Sunbeam debacle. After hearing testimony about the value of AMA visits, the HOD amended the proposal to call for the development of criteria to assess the value of appearances in relation to AMA goals and naming the AMA president as the primary spokesperson.

The committee's report also questioned the board's self-evaluation process, and delegates debated whether BOT evaluations should be conducted by external auditors. Ultimately the HOD chose to expand the role of the board's internal audit committee.

Van Etta, Tompkins, Crabb Serve on Committees

- Richard B. Tompkins, M.D.,

chaired Reference Committee H, which considered health care data and systems.

- MMA President-elect John Van Etta, M.D., served on Reference Committee D, which dealt with public health issues. Three Minnesota resolutions were considered by that committee.

- Kenneth W. Crabb, M.D., served on reference Committee E, which dealt with resolutions related to science and technology.

Also at the AMA Interim Meeting, the MMA, the North Central Medical Conference, and the American College of Obstetricians announced support for Crabb's candidacy for election to the American Medical Association Council on Scientific Affairs and distributed an endorsement flier. The election will be held at the AMA Annual Meeting in June. Robert Christensen, M.D., is the chair of Crabb's campaign committee.

And the MMA has endorsed the bid of John Van Etta, M.D., for appointment to the AMA Council on Legislation. Both the MMA and the North Central Medical Conference will send letters recommending that the AMA Board appoint Van Etta to the council in April. ■

Abenstein, Bessinger to Lead HTAC

John Abenstein, M.D., a Mayo Clinic anesthesiologist, has been elected chair of the Health Technology Advisory Committee for 1999. Abenstein also serves on the MMA Committee on Legislation.

Blanton Bessinger, M.D., director for child advocacy and child policy at Children's Hospital in St. Paul, will be vice chair of the committee. Bessinger also serves as Speaker of the MMA House of Delegates and

leads the MMA's task force on metropolitan hospital bed capacity.

At its November meeting, HTAC selected six technologies to evaluate in 1999. They are: prophylactic therapy for breast cancer; autologous chondrocyte implantation for degenerative joint disease/osteoarthritis; transmyocardial laser revascularization; vaccinations for diseases; surgical alternatives to hysterectomy; and human growth hor-

mone (HGH) as a treatment for children of short stature.

The committee expects to develop full assessment reports on some, but not all, of the selected technologies. Others will be the subject of consumer education pieces.

HTAC has nearly finished evaluations of five technologies, including the automatic external defibrillator, refractive eye surgery, and new technologies for cervical cancer screening. ■

RESOLUTIONS cont. from page 33

as Wisconsin, said it would be inappropriate for the AMA to try to undo the hard-fought compromise, despite its imperfections.

Ultimately the HOD adopted substitute resolution 431 in lieu of six resolutions relating to the MSA. The resolution calls on the AMA to “publicize, support, and implement the elements of its policies that have not been adequately addressed” by the MSA and work with various branches of government and other groups to “achieve public health goals and accomplish the issues addressed by our AMA policies through . . . tobacco control legislation.”

Thanks to an amendment proposed by Hanson on the House floor, the resolution also demands that all MSA funds be used “first to increase the budget for tobacco cessation and prevention programs” as well as treatment of diseases related to nicotine addiction.

“Money first should go for tobacco cessation and prevention programs, particularly those targeted to children

and adolescents,” Hanson testified.

Finally, the resolution calls on the AMA to strongly support efforts to direct settlement money to tobacco control and other health care-related purposes, and to support legislation requiring settlement money to remain with the states—not to be reimbursed to the federal government. The action by the House reflects the belief that the MSA was a valuable first step, but the AMA should continue to try to work toward goals that were not met in the agreement.

Home Health Care Interim Payment System

The MMA’s resolution calling on the AMA to monitor the impact of Medicare’s home health care interim payment system (IPS) on beneficiaries’ access to home health care services—and to help push reform of the payment system if necessary—was replaced by Substitute Resolution 108, adopted by the HOD. That resolution calls on the AMA to urge the Health Care Financing Adminis-

tration, the Medicare Payment Advisory Commission, and Congress to monitor the effects of the home health IPS on quality of care and patient access to “medically necessary services.”

Insurance Parity for Mental Health, Chemical Dependency

The MMA’s resolution calling for reaffirmation of current AMA policy on parity for mental illness, alcoholism, and substance abuse in medical benefits programs, and asking the AMA to develop model state legislation guaranteeing parity for coverage of mental illness and chemical dependency, was replaced by Substitute Resolution 215. That resolution, passed by the House, includes similar language but also calls on the AMA to cooperate with the American Psychiatric Association “and other interested organizations” in developing the model legislation.

To view the complete, unofficial proceedings of the 1998 AMA Interim Meeting, visit the AMA Web site at www.ama-assn.org. ■

Strong E&M Guidelines Resolution Passed

The AMA HOD has again passed a strong, detailed E&M guidelines resolution. Substitute Resolution 804 reaffirms current AMA policy on the guidelines. It also calls on the AMA to:

- “Express outrage that the practice of medicine is characterized as abusive and fraudulent” and to “vigorously oppose the harassment of honest physicians”;

- Help protect physicians from unwarranted allegations of fraud and abuse, and the resulting penalties, due to inadvertent errors in coding and/or interpretation of documentation guidelines;

- Continue providing input on the guidelines through the Health

Care Financing Administration (HCFA) through the CPT Editorial Panel;

- Attempt to ensure that the final guidelines are “patient-centered, simplified, clinically relevant, realistic, and practical and do not require excessive physician time or documentation beyond that needed for good patient care”;

- Reaffirm the AMA’s strong rejection of a numeric counting system;

- Urge HCFA to eliminate random audits and instead use a “focused review program” that emphasizes the identification of statistical outliers;

- Support adequate pilot testing;

- Urge HCFA to improve the post-payment audit appeals process;

- Urge HCFA to revise carriers’ use of the extrapolation technique;

- Urge HCFA to suspend critical care audits until HCFA clarifies critical care policies and billing requirements; and

- If negotiations with HCFA are unsuccessful and AMA policies are not incorporated into the final guidelines, to pursue appropriate legislation.

To view Substitute Resolution 804 and read about some of the E&M testimony, visit the AMA Web site at www.ama-assn.org. ■

NEWS DIGEST

*People and places
making medical news*



People & Places

Jay Cohn, M.D., professor of medicine at the University of Minnesota, received the Distinguished Achievement Award from the American Heart Association at its annual meeting in Dallas. Recognized for his contributions to cardiovascular medicine, Cohn has written extensively on circulatory physiology, hypertension, congestive heart failure, and nervous system control mechanisms in heart failure. His work led to several patents aimed at improving diagnostic and therapeutic approaches to heart failure and hypertension. He came to the University of Minnesota in 1974 and served as head of the cardiovascular division of the Medical School until 1996.

John W. Bluford, HCMC administrator since 1993, will become chief executive officer for Truman Medical Center, Inc., in Kansas City, Missouri, in March 1999. During Bluford's tenure at HCMC, the hospital regained financial stability and received national recognition for clinical and research programs. It was ranked among the top 50 U.S. hospitals by *U.S. News & World Report*, and its intensive care mortality rates were among the lowest in the country.

Gordon Sprenger, executive officer of Allina Health System Cor-

poration, received the University of Minnesota's Outstanding Achievement Award, the highest non-degree award given to alumni. After receiving a master's in hospital administration from the university in 1961, Sprenger served as clinic administration officer for the U.S. Air Force Hospital, president and CEO of LifeSpan, and head of HealthSpan. He went on to form Allina Health System Corporation, an affiliation of HealthSpan and Medica.

Karen Hsiao, M.D., Ph.D., associate professor of neurology at the University of Minnesota, received a \$100,000 award from the Metropolitan Life Foundation for her research on Alzheimer's disease. Her laboratory group created the first genetically altered mice to show an association between physical changes in the brain and changes in learning and memory similar to those seen in Alzheimer's disease.

The UCare Minnesota Fund Council of the Minnesota Medical Foundation in August awarded more than \$310,000 in grants to health care innovators to improve health care and community resources in Minnesota. Receiving research awards were: Patricia Fontaine, M.D., a physician at the University Family Physicians-

Smiley's Clinic in Minneapolis, for a project on pain management during labor; Kenneth Hepburn, Ph.D., associate professor in the geriatrics division of the Department of Family Practice and Community Health at the University of Minnesota, for home caregiver training; and Joseph Keenen, M.D., associate head of the Department of Family Practice and Community Health, to study diet and hypertension. Community project awards went to: Patrick Keenan, M.D., of University Family Physicians-North Memorial Clinic in Minneapolis, for a program to help increase reading skills among the clinic's preschool patients; The Fairview Foundation, to continue its pharmacy-benefit program for seniors and disabled people; and Catholic Charities, for the Seton Services Parental Program, which works to improve pregnancy results of low-income women in Minneapolis.

The new chair of Medical Alley's board of directors is Jerry Haarmann, CEO of Memorial Blood Centers of Minnesota. He replaces outgoing chairman James Dixon. The Minneapolis-based trade association of more than 220 health care-related companies also elected new board members:



David Cress, executive vice president/COO of North Memorial Health Care; Dale DeVries, vice president, CPI Guidant Corp.; Robert Dutcher, president/CEO, Possis Medical; Robert Elgin, vice president, St. Jude Medical, Inc.; V. Katherine Gray, president/CEO, SAGE Health Management Solutions; Dee Kemnitz, Buyers Health Care Action Group; Lisa Olson, COO, C.L. McIntosh & Associates; R. Edwin Powell, principal, Health & Technology, Inc.; James Ravell, partner, Grant Thornton LLP; and Maria Westfall, global business manager, 3M Corp.

Timothy Ebner, M.D., Ph.D., a professor of neurosurgery and physiology, has been named head of the new neuroscience department at the University of Minnesota. Ebner was director of the

graduate program in neuroscience and holds the Visscher Chair of Physiology. The new department was created as a result of a university-wide biological sciences reorganization.

Gillette Children's Specialty Healthcare is launching a new sports medicine program for young people with disabilities. The first of its kind in the country, the program promotes sports participation, education, and conditioning, as well as injury prevention and rehabilitation. A major component of the program is encouraging young people, no matter what their ability, to get involved in physical activity.

The University of Minnesota received \$5 million from the National Institutes of Health to launch its Drug Addiction Research Cen-

ter in Molecular and Cellular Biology. The center will include faculty from the departments of pharmacology, biochemistry, and surgery and the College of Biological Sciences. Researchers will work to identify the molecular changes in nerve cells that accompany drug addiction to better understand how addiction occurs.

The Minnesota Medical Association's Continuing Medical Education Accreditation Program awarded certificates to CME sponsors Fairview-University Medical Center of Minneapolis and St. Joseph's Medical Center of Brainerd. These organizations have been accredited by the MMA for 20 years. ■



Socioeconomics

Physicians, Clinics Form Own Health Plan

A group of Twin Cities doctors and businesses are creating a new health plan intended to give members more control in health care decisions. **Community Coordinated Health Care (CCHC)** is seeking accountable provider network licensing from the Minnesota Department of Health. The new health plan will be organized as a cooperative. If approved, it will be the only metro area health plan funded and governed by physicians and clinics. CCHC is one of several organizations trying to establish alternatives

to Medica, HealthPartners, Preferred One, and Blue Cross and Blue Shield of Minnesota, which collectively administer health care for 80 percent of the area's population.

The group hopes to enter the market in 1999 and initially offer its plan to members of the **Employers Association**, a group of 1,700 small businesses and organizations. The plan would allot a certain amount of money to each member to spend on health care, a concept similar to medical savings accounts. Members would be able to keep any money they hadn't used by the end of the year. CCHC's financial backers include Minnesota Specialty Physicians, Minnesota Healthcare Network, Ridgeview Medical Center of Waconia, and a group of primary care clinics.

Rates for Medicare HMOs Rise

Premiums for some of the state's Medicare HMOs will rise 15 percent to 35 percent in 1999. Seniors in those plans will have to pay about \$50 more each month, especially for policies that cover prescriptions. Among the HMOs raising rates are **Medica SeniorCare**, **Group Health Partners for Seniors**, and **HealthPartners 65+**. Supplemental insurance companies that are increasing premiums include **Blue Cross and Blue Shield of Minnesota** and **Bankers Life and Casualty Co.** Rates remained stable for **Continental General Insurance** and **UCare for Seniors**, a new HMO that started last fall. For a list of organizations and rates, contact **Senior LinkAge Line**, 800/333-2433, or the **Minnesota Senior Federation Health Plan Information Center**, 612/642-1398, ext. 145. ■



Research & Innovations

'U' Tests New Treatment for Autoimmune Diseases

University of Minnesota researchers are starting a clinical trial of autologous stem cell transplantation for patients with severe autoimmune disorders, such as lupus, vasculitis, and rheumatoid arthritis. The process, evolved from bone marrow transplantation, uses patients' own stem cells, avoiding problems that can occur with donated cells.

In autologous stem cell transplantation, the patient's stem cells are extracted and treated to remove T cells, which trigger autoimmune diseases, then frozen and stored while the patient receives chemotherapy and radiation. The healthy cells are then thawed and reinfused into the patient.

Twenty groups across the United States are exploring treatment of autoimmune diseases with stem cell transplantation; the university team will intensify the chemo and radiation therapy and add drug therapy to ward off redevelopment of the disease.

Because treatment costs around \$100,000 and is considered experimental, insurance companies may be reluctant to pay for the procedure, which may limit participants eligible for the study, said Arne Slungaard, M.D., associate professor of hematology at the university. Slungaard, who leads the university's research group, noted that routine treatment for patients with these diseases is costly as well.

Genetic Link to Brain Defect Discovered

The genetic mutation responsible for lissencephaly, a birth defect that causes epilepsy and mental retardation, has been identified by researchers from the University of Minnesota, University of Chicago, Harvard Medical School, and the University of California at San Francisco. Brain abnormalities from the mutations, responsible for 76 percent of lissencephaly cases, are detectable with blood tests and through magnetic resonance imaging (MRI). This finding could lead to prenatal diagnosis of the mutation and the possibility of treatment or prevention of the resulting abnormalities, according to Elizabeth Ross, M.D., Ph.D., associate professor of neurology at the

university and one of the study's principal investigators. The defect occurs in 4 to 11 out of every million live births in the United States, although since the 1980s, the incidence is 10 to 100 times higher, according to William Dobyns, M.D., a neurologist at the university who has followed the disorder for nearly two decades. The study was published in the December 7 *Human Molecular Genetics*.

Nasal Spray Could Be Flu Shot Alternative

In a national study, researchers at the Veterans Administration Medical Center in Minneapolis have found that an experimental nasal spray is a safe and effective flu vaccine. The spray will benefit those who avoid getting flu shots because they fear needles, says Kristin Nichol, M.D.,



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chief of medicine at the VA medical center and chair of the study's analysis committee. The spray contains weakened live flu viruses and stimulates a mild infection, causing the immune system to fight the virus. Participants experienced mild side effects such as runny noses and sore throats for a day or two. The spray, called FluMist, is manufactured by California-based Aviron. It is pending FDA approval and could be available as a prescription by fall 2000.

Epilepsy Drug Eases Pain Associated with Diabetes

The anticonvulsant drug gabapentin could be used to treat diabetics who suffer from peripheral neuropathy, according to researchers at the University of Wisconsin-Madison and the Mayo Clinic in Rochester. A study of gabapentin (sold under the name Neurontin) showed that the

drug reduces pain from peripheral neuropathy. Half of the nation's diabetics are afflicted with the condition, which causes memory loss, muscle weakness, and pain, resulting from damage to the spinal cord's peripheral nerves. In trials, about twice as many patients, or 16 percent, were pain-free after taking gabapentin as those taking placebos. Gabapentin was approved by the FDA in 1994 as a treatment for epilepsy.

Study Assesses New Alzheimer's Drug

Regions Hospital in St. Paul is seeking volunteers with mild to moderate Alzheimer's disease to help determine proper dosages of galantamine, a promising new drug that slows the disease's progression. In an earlier study, patients who took galantamine showed no further decline in mental scores and a modest improvement in

their personalities, said Ronald Landbloom, M.D., medical director of the hospital's psychopharmacology research program. Some participants will receive the drug and others will receive a placebo. After three months, the placebo group will be switched to the drug. Follow-up will last for six months or more, Landbloom said. Galantamine, made by Jansen Pharmaceutica, is awaiting FDA approval.

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BMP *continued from page 31*

physicians about "the purpose, intent, and process of the board, the Health Professionals Services Program (HPSP), and mandatory reporting requirements."⁶ The task force also noted that the board needs to better communicate that the Health Professionals Services Program is separate from the regulatory authority of the board and is confidential.

As another means of improving communication, the task force report urged the board to revise the application cover letter to explain that the disability-related questions are asked in accordance with the Americans with Disabilities Act. The task force urged the board to stress, whenever possible, that conduct alone, not disability or diagnosis, results in discipline.

The task force recommended that medical record requests should be obtained in a hierarchical approach, beginning with the licensee's self-report. If needed, additional documents would be obtained in the following order:

1. The treating physician's statement.
2. Hospital summaries, including admission and discharge reports.
3. Full hospital records.
4. Outpatient treatment records.⁶

This is substantially different from the board's current practice of obtaining all medical records related to the applicant's medical condition. The task force did emphasize, however, that the board would retain the ability to subpoena *all* relevant medical records at any time.

CONCLUSION

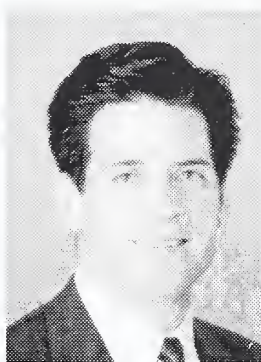
Although the board adopted most of the task force's recommendations, many would argue that the board has chosen to continue to use a diagnosis-based approach to licensure, rather than shifting the inquiry to the physician's ability to practice medicine. This has left physicians feeling that the BMP's licensure process still needs improvement. MM

Christina Rich is an attorney with the Minnesota Medical Association.

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NASTY VIRUSES!

It's **COLD AND FLU SEASON** on the screen

The common cold and influenza have
worked their way into the arts.

BY JON HALBERG, M.D.

Few experiences are as universal. That burning sensation in the back of the throat and nose. A cough, nasal congestion, and sneezing. Fever and myalgias. All of us have had these symptoms at some point in our lives, if not within the last year. For many of us, the mundane common cold serves as a brief reminder of our vulnerability and of the body's healing abilities. It gives us an excuse for a day off. But there is nothing quite so terrifying as cold symptoms gone awry, as with influenza. Even at the end of the 20th century, influenza is still a leading cause of death in this country. Not surprisingly, the common cold and its more lethal companion have worked their way into the arts, though in dramatically divergent ways.

For the common cold, the approach is comical and nonsensical, as I was reminded recently when I watched Disney's "Peter Pan" with my son. Captain Hook has somehow caught a cold. Although he had

fallen off his ship, the water was tropical. Maybe he got caught in the rain, wasn't wearing a hat, or his ears weren't covered. We grew up knowing, probably through our mother's admonitions and cultural reinforcement, that these are all sure-fire ways to catch a cold. So there he is, poor Captain Hook, recovering on deck. His nose is red and produces grandiose sneezes and a honk when he blows. His body shivers and his teeth chatter. His feet are soaking in steaming water, his body is wrapped in a blanket, and on his head a hot water bottle rests fashionably.

In Billy Wilder's film "The Apartment," Jack Lemmon's character catches his cold while standing out in the rain. What follows is perhaps the funniest portrayal of the common cold ever put on film. Cold symptoms are also used to great comic effect in the musical "Guys and Dolls." Adelaide, desperately in search of a mate, finds herself with a constant cold.

In a hilarious lament, she sings—through both a thick Brooklyn accent and a stuffed nose—of her litany of symptoms: the wheezes, the sneezes, the grip, and the postnasal drip. We laugh at these scenes because we relate. We know there is little to be done for the common cold save for home remedies, over-the-counter products, and rest. And there is little fear of dying.

The same cannot be said for influenza, a word that originated in an Italian reference to the “influence” of the stars. While portrayals of the common cold are typically light and comical, those for influenza are dark and foreboding. This seems appropriate for a disease that can knock us down with a powerful punch, a disease that reportedly could kill a man right in his tracks. At one time influenza was thought to be relatively benign. After all, it didn’t pock the skin or fill graveyards like many of the great scourges. That all changed in 1918 with the flu pandemic. In less than one year, between 20 and 40 million people worldwide lost their lives. This equals or exceeds the number of people who died during the plague from 1347 to 1351, and it is more than three times the number of combatants who died in World War I.

In the United States, the death toll from the 1918 flu was approximately 550,000.

Strangely, for a disease that was so devastating, there is almost no cultural or artistic record of it. Two of the remaining pieces document the event with words rather than visual images. The first is a playground chant:

I had a little bird
And its name was Enza.
I opened the window
And in-flew-Enza.

It would be easy to dismiss this as purely a lighthearted childhood chant, but it captures the ability of this

disease to affect anyone, with hardly a warning. The other piece is the novella “Pale Horse, Pale Rider” by Katherine Anne Porter. Originally published in 1939, it tells the story of a young woman who is stricken with the flu. Her fiancé, a soldier, nurses her back to health. Just as she regains her strength, he contracts the flu and dies suddenly. The story has a detached, ethereal quality. It is as though, 20 years after the pandemic, Porter was still dazed by the event.



Jack Lemmon battles a cold in “The Apartment.”

PHOTOGRAPH COURTESY OF MGM

Within the last few years, flu has become a rather hot theme within the arts. In Stephen King’s novel and film “The Stand,” a “superflu” wipes out much of the world’s population. Terry Gilliam’s 1997 film “Twelve Monkeys” also presents an apocalyptic vision. It tells the story of a society that has fled underground following the decimation of humankind by a flu-like plague. Last year, PBS aired an episode of “The American Experience” entitled “Influenza: 1918.” This proved timely, since it followed on the heels of the “bird flu” in Hong Kong that captured the world’s attention. Influenza has since made the covers of *Time* and *Rolling Stone* and been parodied in *Entertainment Weekly*.

Now that flu vaccines are dispensed at supermarkets and vehicle emissions testing sites, influenza has become a fixture of pop culture, much the way the common cold has been for years. But there remains a difference; we don’t laugh at the thought of influenza. **MM**

Jon Hallberg is the medical director at the Fairview Arts Medicine Center. Watch for his next “Medicine & the Arts” column in the March Minnesota Medicine.

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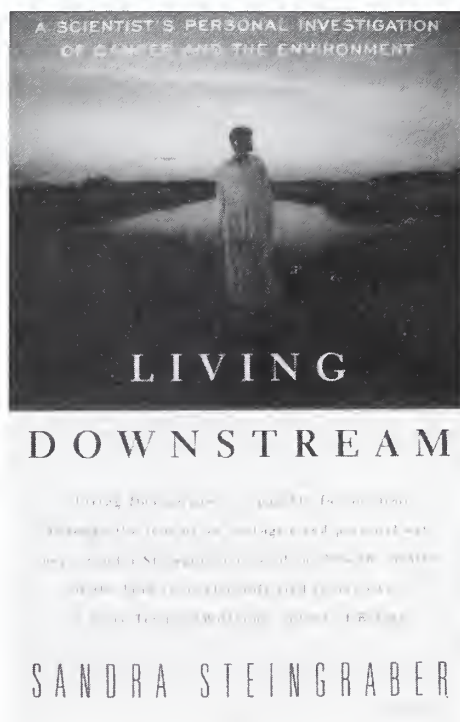
Poisoning Our Prairies

"Living Downstream: A Scientist's Personal Investigation of Cancer and the Environment" is a lyrical dissection of what lurks in our air, land, and water—and what it might do to us.

Reviewed by Charles R. Meyer, M.D.

I was raised an ecological cynic. Business was what made America great, and industrial byproducts like sulfur dioxide and PCBs were merely hallucinations of raving tree-huggers or, at their worst, necessary evils of progress. My cynicism was stoked by medical training, which, in the 1970s, mentioned only classic examples of chemically induced disease, such as scrotal cancers in chimney sweeps, and danced around the connections between industrial contaminants and cancer. Why didn't my classmates and I come out of medical school with a healthy suspicion of the unhealthy effects of environmental pollutants? Probably the causal chain was too obscure and our trust in society's protections too great. The chemicals that may have caused the cancer of the patient in the exam room seemed as remote as the thought that the sterile-appearing, plastic-wrapped meat at Byerly's might have something bad in it. We had come to trust certain things in our environment. We trusted airline pilots to be adept, we trusted docs to be competent, and we trusted a nameless web of governmental agencies to protect our food and the environment from dangers.

But what might shake that trust? How about having bladder cancer at age 19? That happened to Sandra Steingraber, and she went looking for answers. Her journey led to a Ph.D. in biology, wide-ranging ecological fieldwork, and the writing of "Living Downstream: A Scientist's



Personal Investigation of Cancer and the Environment" (Addison-Wesley Publishing, 1997), a lyrical dissection of what lurks in our air, land, and water—and what it might do to us.

Steingraber starts in her hometown of Pekin, Illinois. She describes endless soybean fields, meandering streams, and pristine prairies, then shatters this bucolic vision with statistics about pesticide-tainted aquifers and ubiquitous hazardous waste. From there, "Living Downstream" artistically weaves personal reflection with scientific documentation in the tradition of Rachel Carson.

Steingraber explains the pitfalls of translating animal studies to hu-

mans, "transspecies extrapolation," and inferring human carcinogenicity from high-dose animal exposures. She bemoans the weakness of epidemiological studies: "Epidemiological studies ... are initiated only after evidence for harm has accumulated. Epidemiology relies on body counts." She discusses bladder cancer in St. Lawrence beluga whales, liver cancer in Boston harbor flounder, and liver cancer in Maryland white suckers, noting that pollutants biomagnify when passed down the food chain.

Steingraber faults the medical profession for ignoring environmental exposures in their routine workups: "[I]n all the years I have been under medical scrutiny, no one has ever asked me about the environmental conditions where I grew up, even though bladder cancer in young women is highly unusual." She condemns medicine's "orthodoxy of lifestyle," which focuses on prevention advice about low-fat diet, exercise, and breast self-exams, even though the majority of breast cancers, for example, cannot be explained by lifestyle factors. She insists that any attempts to link diet to cancer should include where the food came from: "A discussion about dietary habits is necessarily also a discussion about the food chain."

With a gift for memorable phrases—Steingraber labels herself a "natural historian of ghosts"—she documents the disappearance of 20 species of fish from the Illinois River and refers to agriculture's reliance on

pesticides as "chemical dependency." She feels gratitude for the nun whose breast cancer produced the immortal cells in the MCF-7 line used to study the stimulatory effects of xenoestrogens. And Steingraber's metaphors prompt disturbing thoughts about

what we accumulate in our bodies in a lifetime: "Our bodies ... are living scrolls of sorts. What is written there—inside the fibers of our cells' chromosomes—is a record of our exposure to environmental contaminants. Like the rings of trees, our

tissues are historical documents that can be read by those who know how to decipher the code."

"Living Downstream" doesn't solve the ultimate environment-cancer conundrum. Don't look for a startling new chain of causation in this book. Our scientific knowledge hasn't reached that point. Yet Steingraber's book is a call to action because environmental pollution is a "human rights issue" and environmental contamination is "homicide." Steingraber's case for the chemical-cancer connection is still circumstantial, but disturbing enough to activate our ecological smoke alarms.

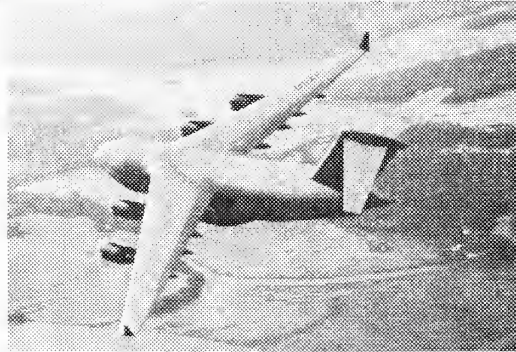
My ecological cynicism has waned over time. Beginning in college with Carson's "Silent Spring" and Paul Ehrlich's "Population Time Bomb," I have developed concern for the unhealthy things we do to our planet. I support the Nature Conservancy and the Sierra Club. But my environmental alarm and my medical career haven't intersected much. Wallace Stevens said, "A poet is a priest of the invisible." Perhaps the incantations of priests like Steingraber will lead all of us in medicine to consider more seriously the invisible forces that may be causing the diseases we see each day.

MM

Charles Meyer is editor-in-chief of Minnesota Medicine and an internist with Consultants-Internal Medicine in Minneapolis.

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Provided through the MMA Committee on Accreditation and CME. For assistance with scheduling meetings or for information on future medical meetings and CME courses, please contact the MMA office: 3433 Broadway Street NE, Suite 300, Minneapolis, Minnesota 55413-1761; 612/378-1875. For a complete listing of our calendar, visit the MMA home page at www.mnmed.org. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

JANUARY 1999

Jan. 28 **Annual VitreoRetinal Surgery Fluorescein Conference 1999** Allina Health System and VitreoRetinal Surgery, P.A.; University Club of St. Paul, St. Paul, MN. CONTACT: Andrea, 570 Physicians Building, 6363 France Avenue South, Edina, MN 55435; 651/644-8993 or 800/635-1797.

Jan. 28-30 **Avoiding the Traps in Ob/Gyn: Third Annual Post Graduate Course** Hennepin County Medical Center; Rancho Bernardo, San Diego, CA. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

Jan. 29 **Family Practice Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention Center, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/727-8159.

FEBRUARY 1999

Feb. 1-5 **Continuing Challenges in Hematology, Oncology and Hematopathology** Mayo Medical Laboratories; Beaver Run Resort, Breckenridge, CO. CONTACT: Julie McAdams, 200 First Street SW, Rochester, MN 55905; 507/284-8599.

Feb. 5-6 **5th Annual Winter Conference: Woman's Health** Minnesota Academy of Family Physicians; Arrowwood Resort, Alexandria, MN. CONTACT: Ronda Steller, MAFP, 600 South Highway 169, Suite 1680, St. Louis Park, MN 55426; 612/542-0130 or 800/999-8198.

Feb. 6-13 **HealthEast 1999 Winter Medical Seminar** HealthEast; Cabo San Lucas, Mexico. CONTACT: Annette Anderson, 1700 University Avenue W, St. Paul, MN 55104; 651/232-5104.

Feb. 11-14 **Neurology in Clinical Practice** Mayo Foundation; Rancho Bernardo Inn, San Diego, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 15-17 **Gynecologic Surgery: Perspectives for the 21st Century** Mayo Foundation; Rancho Bernardo Inn, San

Diego, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 22-26 **Selected Topics in Internal Medicine** Mayo Foundation; Hapuna Beach Prince Hotel, Mauna Kea Resort, Hapuna Beach, Big Island of Hawaii. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 22-26 **Second Mayo Clinic Endocrine Course** Mayo Foundation; The Ritz-Carlson Kapalua, Maui, Hawaii. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 25-27 **Mayo Clinic State-of-the-Art Symposium: Arrhythmia Management** Mayo Foundation; Silverado Resort, Napa Valley, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

MARCH 1999

March 6 **Annual VitreoRetinal Surgery Retina Update Conference 1999** Allina Health System and VitreoRetinal Surgery, P.A.; Radisson Hotel & Conference Center, Plymouth, MN. CONTACT: Dian Johnson, 570 Physicians Building, 6363 France Avenue South, Edina, MN 55435; 612/929-1131 or 800/635-1797.

March 8-12 **Tutorials in Diagnostic Radiology** Mayo Foundation; Keystone Resort, Keystone, CO. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

APRIL 1999

April 11-16 **Advanced Management Program for Healthcare Executives** The University of Minnesota, Carlson School of Management, Executive Development Center in partnership with Mayo Clinic; Mayo Clinic, Rochester, MN. CONTACT: Kay Kenitz, Mayo Clinic, International Education, 200 First Street SW, Rochester, MN 55905; 507/284-8399.

April 16 **15th Annual Heart Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention Center, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

April 16-17 **Osteoporosis: A Clinical Perspective** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

April 22-23 **Spring Refresher** Minnesota Academy of Family Physicians; Hyatt Regency Hotel, Minneapolis, MN. CONTACT: Minnesota Academy of Family Physicians, 600 South Highway 169, Suite 1680, St. Louis Park, MN 55426; 612/542-0130 or 800/999-8198.

April 22-24 **Hip and Knee Reconstruction: An Update** Mayo Foundation; The Pointe Hilton at Squaw Peak, Phoenix, AZ. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

MAY 1999

May 4-7 **Sixth International Surgical Pathology Symposium** Mayo Medical Laboratories; Hotel Inter-Continental, Prague, Czech Republic. CONTACT: Julie McAdams, 200 First Street SW, Rochester, MN 55905; 507/284-8599.

May 21 **Poisonous Plants Symposium** Hennepin County Medical Center; Pillsbury Auditorium, HCMC, Minneapolis, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

JUNE 1999

June 16-18 **63rd Annual Course, Advances in Breast, Endocrine, and Cancer Surgery** University of Minnesota Medical School, Department of Surgery; Willey Hall, University of Minnesota, Minneapolis, MN. CONTACT: Office of Continuing Medical Education, University of

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SEPTEMBER 1999

Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

ENDURING MATERIALS

Videotapes: **Bloodborne Pathogens, Antibiotic Update and Resistance, TB Update, Flesh-Eating Strep** Allina Health System. CONTACT: Patricia E. Walton, 5601 Smetana Drive, PO Box 9310, Minneapolis, MN 55440-9310; 612/992-2867.

Videotapes: **Antibiotic Resistance/STDs, HIV/Adult Immunizations, Diarrheal Parasitic Diseases/Foodborne Diseases** University of Minnesota. CONTACT: Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

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MDsearch assists medical groups and hospitals in their recruiting efforts. For confidential information on opportunities in the Upper Midwest, send CV and/or call collect Mary Jo Cordes, MDsearch, PO Box 21507, St. Paul, MN 55121; 612/454-7291. Fax: 612/454-7277. (2/93-R)

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Dermatologist: Progressive and growing 94-physician multispecialty clinic based in St. Cloud, Minnesota, seeks a BC/BE dermatologist to join busy department. Opportunity to establish full scope dermatology practice. CentraCare Clinic-River Campus is located in a growing central Minnesota community which offers an outstanding lifestyle with three colleges, excellent public and private schools, and abundant recreational activities. St. Cloud is located on the Mississippi River and is a one-hour drive to the Twin Cities or premier lake areas. Attractive compensation and benefit package. Interested applicants should send CV to: Mark Murphy, Clinic Administrator, CentraCare Clinic, 1200 6th Avenue North, St. Cloud, MN 56303. Phone 320/240-2151; fax 320/240-2113. 3-1/99

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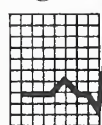
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Janesville, Wisconsin: Dean Medical Center, a 395+ physician multispecialty group, is actively recruiting a BE/BC internist for our Riverview Clinic in Janesville, Wisconsin (population 60,000, located 40 miles southeast of Madison). Janesville is a beautiful, family-oriented community with excellent schools and abundant recreational activities. There are 60 physicians at our Riverview Clinic, which is a new facility overlooking the scenic Rock River. Cur-

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The Buffalo Clinic and Monticello Clinic, an independent physician-owned practice is seeking to add BE/BC physicians in:

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Linda Dircks, Administrator

Buffalo Clinic 

1700 Hwy 25 North, Buffalo, MN 55313
Phone: 612/287-6877 Fax: 612/287-6805

rently there are 12 internal medicine physicians at the Riverview location. The call schedule will be one in 12 for weekdays and weekends. Excellent compensation and benefits will be provided with full-time employment leading to shareholder status in two years. For more information, contact Scott Lindblom, Medical Staff Recruiter, Dean Medical Center, 1808 West Beltline Highway, Madison, WI 53715, work 608/250-1550, home 608/845-2390 or fax 608/250-1441. 3-1/99

Neurologist-Minnesota: Progressive and growing 94-physician multispecialty clinic based in St. Cloud, Minnesota, seeks third BC/BE neurologist to share one-in-seven call. Growing central Minnesota community offers an outstanding lifestyle with three colleges, excellent public and private schools, and abundant recreational activities. St. Cloud is located on the Mississippi River and is a one-hour drive to the Twin Cities or premier lake areas. Attractive compensation and benefit package. Interested applicants should send CV to: Mark Murphy, Clinic Administrator, CentraCare Clinic, 1200 6th Avenue North, St. Cloud, MN 56303; 320/240-2151; fax 320/240-2113. 3-1/99

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If you are looking for a practice that has all the positives of rural life, coupled with the strengths and support of a large multi-specialty teaching institution, please send letter of application and Curriculum Vitae to Frank Perez-Guerra, Manager, Recruitment, Retention and Resource Planning, Gundersen Clinic, Ltd., 1836 South Avenue, La Crosse, Wisconsin 54601; or call 1-800-362-9567, extension 6325.

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Brainerd, MN 56401



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The Alexandria Clinic, P.A., is a 32-physician multi-specialty group currently recruiting additional physicians in the following specialties:

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- ENT
- OPHTHALMOLOGY
- INTERNAL MEDICINE
- NEPHROLOGY

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Administrator
Alexandria Clinic, P.A.
610 30th Ave. W., Alexandria, MN 56308
320•763•5123

Fergus Falls Medical Group, P.A.: The Fergus Falls Medical Group is expanding its 35-physician multispecialty clinic and is seeking physicians in the following specialties: ENT, family practice, general surgery, dermatology, orthopedics, psychiatry, and internal medicine. Excellent salary/benefits package includes guaranteed salary the first year with full partnership after one year. For confidential information on this opportunity, contact David T. Bjork, M.D., or Jim Wilkus, Administrator, 615 South Mill Street, Fergus Falls, MN 56537, 800/247-1066. EEO/AA.

3-3/99

Medical Director, Emergency Room/Urgent Care Department: Large tertiary care academic VAMC seeks BC physician (internal medicine or emergency medicine). Responsibilities include staff supervision, resident and student education, patient care, CQI activities. Opportunity for a small primary care practice. No weekend or night hours. Academic appointment at the University of Minnesota Medical School for qualified candidates. Please send CV, cover letter, or call: Hanna B. Rubins, M.D., General Internal Medicine (111-0), VAMC, Minneapolis, MN 55417. 1-1/99

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For more information contact:

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(218) 828-7657

Curt Nielsen
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BC/BE Internist: The Fergus Falls Medical Group, P.A., is recruiting a seventh BC/BE general internist to join its 35-physician multispecialty group. Additional training with either echocardiography or nephrology/dialysis management would be helpful. Outstanding opportunity for well-trained individual interested in balancing personal values and professional endeavors. Excellent salary/benefits package includes guaranteed salary the first year with full partnership after one year. For confidential information on this opportunity, contact David T. Bjork, M.D., Bruce E. Money, M.D., or Jim Wilkus, Administrator, 615 South Mill Street, Fergus Falls, MN 56537, 218/739-2221 or 800/247-1066. EEO/AA. 3-3/99

Internal Medicine-Minnesota: CentraCare Clinic is a progressive and growing 94-physician multispecialty clinic based in St. Cloud, Minnesota. The River Campus site located in St. Cloud seeks a BC/BE internist to join a general internal medicine department of 12 physicians. Growing central Minnesota community offers an outstanding lifestyle with three colleges, excellent public and private schools, and abundant recreational activities. St. Cloud is located on the Mississippi River and is a one-hour drive to the Twin Cities or premier lake areas. CentraCare Clinic-Little Falls seeks a BC/BE internist to join an experienced general internal medicine physician at the Little Falls site. Call schedule one in four. Growing central Minnesota community offers an outstanding lifestyle, outstanding public school system, and abundant recreational activities. Little Falls is located on the Mississippi River and is a 90-minute drive to the Twin Cities and a 30-minute drive to St. Cloud or premier lake areas. Attractive compensation and benefit package. Interested applicants should send CV to: Mark Murphy, Clinic Administrator, CentraCare Clinic, 1200 6th Avenue North, St. Cloud, MN 56303. Phone 320/240-2151; fax 320/240-2113. 3-1/99

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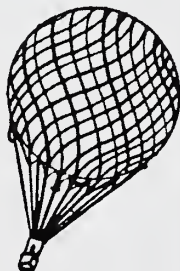
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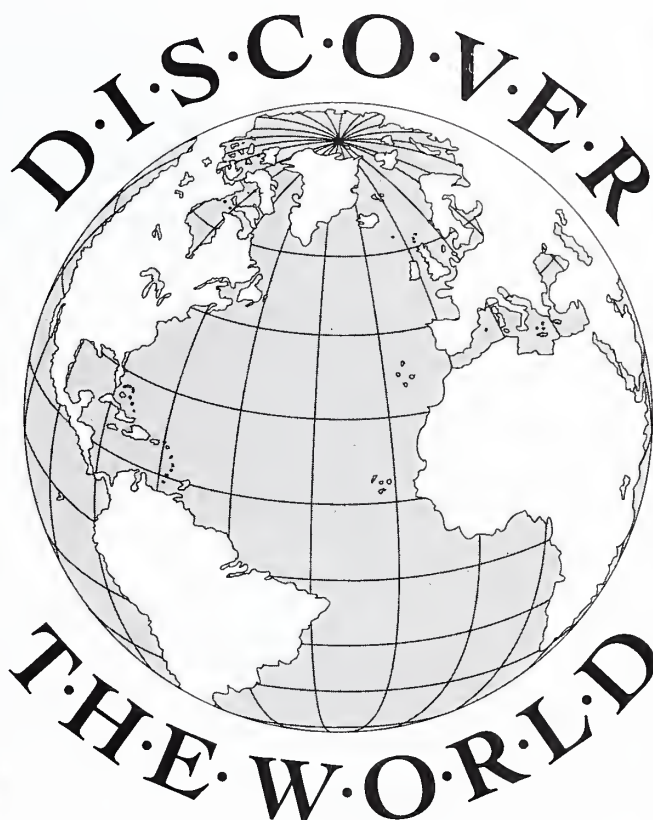
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Minnesota Medicine's
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column about what
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Renaissance Doc

Abdhish Bhavsar

Abdhish R. Bhavsar is a veritable Renaissance man of hobbies—amateur car racer, saxophone player, women's jewelry designer, painter, and kite flier. Oh, yes—he's also a retina surgeon at Phillips Eye Institute in Minneapolis.

Bhavsar races his '94 Dodge Stealth twin turbo, an unmodified street car he sometimes drives to work. He caught the racing bug during his fellowship at UCLA, but quickly concluded that road rallies with 20 cars competing neck-and-neck were too dangerous. Instead, he races against the clock in Autocross meets, with only one other car on the track at the same time. The course takes about 60 seconds and includes lots of hairpin and 90-degree turns. Speed is secondary to handling. "You run most of the race in second gear at 30 to 60 miles per hour," he says. "The skill comes in learning when and how much to brake, when to accelerate out of a turn, and how to keep from bumping into pylons, which slow you down. It's not about going as fast as you can." Last summer, Bhavsar placed first in his Autocross division. "Kind of exciting," he says.

Bhavsar favors Dodge because he grew up near Detroit, next door to Bill Dayton, the Chrysler design chief who created the Lamborghini Diablo. "I used to watch him drive, which sparked my interest," Bhavsar says. It's not the adrenaline rush that appeals—it's the calming effect racing has on him. "Autocross is not stressful like neck-and-neck, where you're competing with a bunch of other racers, any one of whom could bump into you. Instead, you're competing against yourself. You're in complete control and it's fun to get to know the

car and its limits."

As for painting, it may be in Bhavsar's genes. He's always liked to draw. His physician father is an accomplished abstract watercolorist. A cousin is an abstract artist whose work hangs in national galleries. Bhavsar started painting seriously just two years ago, but he's submitted a couple of his abstract acrylic paintings for consideration at Twin Cities art shows. Last summer, he completed six paintings, one of which he plans to show at this year's American Academy of Ophthalmology meeting in New Orleans. "No one will ever mistake my work for my cousin's," he says. "But I enjoy it just the same."

Bhavsar's wife, Mary, needs a big box to hold the jewelry he makes from pearls and gems. Bhavsar became interested in pearls while living in Los Angeles, home to a major pearl wholesale market. He taught himself how to work with cultured and freshwater pearls. He designs necklaces and earrings with East Indian motifs—pearls surrounded with gold and tiny emeralds. For now, his creations are strictly gifts for family, but someday, he says, he will open his own shop.

Bhavsar plays the saxophone because he says he likes the way it takes him away from the stresses of work. "There's something about music. It just makes you feel really good." He used to be a serious sax student and had his own rock band during medical school at Wayne State University in Detroit. Now he plays for himself—blues, jazz, and classical pieces. Mary, who's studying piano,



sometimes joins him in jazz duets. Right now they're working on Dave Brubeck's "Take Five."

On summer days, especially when he vacations near the ocean, Bhavsar flies his flexifoil kite 150 feet above the beach. He started flying kites as a teenager, when he worked at a Nantucket kite store. Flying a 10-foot-tall kite—which is large enough to lift a small child—takes a good deal of upper-body strength, and two 300-pound test strings are needed to control the kite.

Certainly Bhavsar would have even more interests, if only there were more hours in a day.

MM

—By Howard Bell

Minnesota Medicine

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Illustration by Keith Skeen.

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JUST WRITE

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(AND WHY NOT TO)** James Kaufmann, Ph.D.
Writing is just plain hard, but it's well worth the effort.

The Good Doctor

Our cover story on workplace abuse (page 10) reminds me of a tale. The tick of the vintage clock on the wall broke the silence of the room. The committee assembled around the boardroom table



sat as silent as the hospital's portraited founders. At the head of the table, Dr. Smith spoke deliberately and with restrained vehemence: "This is clearly a plan by the physicians around this table to tarnish my reputation. I practice quality medicine, and personality conflicts should not be a subject for peer review. I am a good doctor."

the same tale.

"I am a good doctor."

So this meeting of a combined lay and physician committee of the hospital board and medical staff was convened. The committee heard the reports. They heard Dr. Smith's insistence that these were interpersonal trifles, misunderstandings, inaccurate descriptions, and that only his clinical acumen should concern the hospital and the medical staff.

"I am a good doctor."

It seemed like a standoff. One person's word against another's about what really happened in all of these incidents. Until a board member who had been quiet throughout the meeting spoke up: "Dr. Smith, 18 years ago I had an obstetrician like you. He was considered a top-notch physician by all, including me. But his temper was legendary. Nurses cringed when he walked onto the floor. They feared asking him anything for fear of chastisement. When I went into labor, I had problems. The nurses knew it, but they would not call the doctor. As a result, my daughter was born with defects that have led to 18 years of pain and suffering for her and my husband and me."

The meeting ended shortly after that with unanimous agreement about disciplinary action.

A good doctor is not an abusive doctor.

.....
-Charles R. Meyer, M.D., Editor-in-Chief

.....
"He was considered a top-notch physician by all, but his temper was legendary."

The meeting was approaching three hours. A joint medical staff-hospital board committee had heard evidence about Dr. Smith's behavior. Four nurses from separate areas of the hospital had reported verbal abuse by Dr. Smith, including swearing at them and demeaning their competence, frequently in front of patients. A nursing supervisor had experienced similar episodes when she responded to pleas from nursing staff to intervene with Dr. Smith. And a letter from a physician on the medical staff described an encounter with Dr. Smith that he found psychologically and physically threatening.

"I am a good doctor."

Previous meetings between Dr. Smith and the medical staff and administrators encouraging him to reform had produced temporary remissions of the abusive behavior, but these were soon followed by new Dr. Smith stories with the same distressing plot.

"I am a good doctor."

Discussions at the medical staff quality assurance and executive committees had been long and heated. Supporters of Dr. Smith, lauding his clinical excellence and dedication to the hospital, finally acceded to the need for action as yet another report from nurses, ward clerks, and doctors told



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Breaking the Cycle of Family Violence

For 25 years, Barbara Elliott, Ph.D., has recognized that violence is a health issue. Today, thanks in part to her efforts, medical schools across the country agree.

By Adele Yorde

Violence became part of Barbara Elliott's reality 30 years ago, on the first day of her first teaching job in an inner-city school. The school was the only building left standing in a six-block radius in Kansas City, Missouri, after weeks of violent civil rights clashes and arson spree. Appropriately, the new teacher in-service session was titled "How to Handle a Weapon in the Classroom."

A few years later, Elliott established a school within the University of Iowa Hospitals to serve children undergoing long or recurrent hospitalizations. "I began seeing a lot of children in the orthopedic unit," she recalls. "There was one child... a little girl who'd suffered 200 broken bones by age 8; clearly they were inflicted injuries. She eventually died. There just was no system in place at that time to intervene in the dynamics of family violence."

For Elliott, this heartbreaking case drove home the need for the medical community to take a leadership role in breaking the cycle of family violence. "Violence changes a person's health," says Elliott, associate professor and director of clinical research in

the Department of Family Medicine and professor in Behavioral Sciences at the University of Minnesota-Duluth School of Medicine and a 1998 recipient of the Minnesota Medical Association Stop the Violence Award.

"Providers of medical care must be aware of family violence and the role it plays in patients' medical complaints. If we look only for trauma during exams, we'd be overlooking a vast majority of battered victims." Family violence can be manifested in many ways besides injuries, including depression, chemical dependency, chronic headaches, abdominal pains, muscle aches, sleeping and eating disorders, and suicide attempts, says Elliott. "The body eventually heals, but the spirit takes longer to recover after abuse."

Family violence, Elliott says, happens across a life span within intimate family relationships. It includes violence against children, partners, elders, and vulnerable adults. A study by UMD medical student Marc Weber and Elliott about violence in gay domestic partner-

ships (published in this month's *Minnesota Medicine*, page 24) provides some further insight into family violence. "While the prevailing ideology points to family violence as a women's issue, this new research



PHOTOGRAPH BY JEFF FREY

Barbara Elliott, Ph.D.

"While the prevailing ideology points to family violence as a women's issue, this new research blows out the edges of that theory, showing that violence has to do with power and control, not gender."

blows out the edges of that theory, showing that violence has to do with power and control, not gender," Elliott says.

Many times, the abuser restricts the partner's activities, and sometimes the only place that person is allowed to go is the doctor's office. Health care providers often are the first and only professionals in a position to recognize and help put an end to the violence. Valuable information about getting out of abusive relationships can be shared in the safe, confidential atmosphere of a doctor's office, emergency department, or hospital room.

1998 Stop the Violence Award Winners

Since 1994, the Minnesota Medical Association has given Stop the Violence awards to individuals or groups working to prevent violence and abuse. Each year, the MMA presents the award to a physician, nonphysician, and an organization working to reduce violence. In addition to Barbara Elliott, two others received awards in 1998.

Michael McGonigal, M.D., director of trauma services at Regions Hospital in St. Paul, developed a program in 1994 that gives teenagers a close-up look at the terror of gun violence. In the "Calling the Shots" program, teens, some of whom have spent time in the Ramsey County Juvenile Detention Center, play the role of health care workers treating gunshot-wound victims in a real emergency department. They examine "patients," cut away clothing, review x-rays, and face the grief and anger of the victim's loved ones.

The Initiative for Violence-Free Families of Hennepin County provides a place for people to come together and prevent violence. Citizens serve on 10 community action teams to solve problems in the community. The initiative has sponsored peace workshops, antiviolence events, pancake breakfasts, and a "Make the Peace" media campaign aimed at at-risk males. It has also provided violence prevention training for businesses.

Elliott has found in her research that physicians can play a vital role in intervention. The Minnesota Medical Association developed lapel buttons for physicians to wear that invite patient dialogue. The buttons read: "It's OK to talk to me about family violence and abuse." Elliott and UMD medical student Lisa Bolin found that doctors who wore the buttons had more than twice as many conversations raised by their patients about such concerns.

In another study, Elliott and medical student Marilou Johnson surveyed women patients about violent relationships. The survey asked about who makes family decisions, incidences of physical abuse, and whether or not patients talked about these issues with physicians. Patients at clinics in Duluth and two rural northern Minnesota communities were surveyed, and the entire study was replicated in St. Paul by Christina Stecker, also a UMD medical student. They found that 45 percent of the women interviewed were living or had lived with a violent partner.

"While the metro and rural numbers were as high as the national averages, the Duluth numbers of women currently living with a violent partner were significantly lower," says Elliott. "I think [this] is directly attributable to the world-class collaborative intervention work going on here." The nationally recognized "Duluth model" of domestic abuse intervention involves everyone from 911 emergency responders and the police to probation officers, the courts, social workers, advocates, and programs for both victims and offenders. The citywide effort started in 1981 with mandatory arrests in cases where police called to a domestic altercation witnessed visible signs of assault.

Violence touches people across generations, Elliott says. "When we grasp that one in six women is living in a violent relationship, we begin to understand that victims of violence are not only patients, but our students, colleagues, neighbors, family members, and friends," she says. "And these numbers just reference domestic violence; they don't even begin to count the numbers of cases of elder and child abuse. Therefore, it is important for physicians to recognize that they see dozens of victims every day in their practices, and just as many perpetrators. It is critical for practitioners not only to discover, but to attend to, issues of abuse in their patients' lives. They need to know about community resources; they need to help change behaviors."

Medical Milestones

Elliott moved to Duluth in the late 1970s with her husband, Tom, an oncologist at the Duluth Clinic,

son Richard, now 24, and daughter Tricia, now 26. With a Ph.D. in medical and family sociology, Elliott started teaching courses in family dynamics and medical sociology part time at the UMD School of Medicine. In 1981, she was asked to design an elective course on abusive relationships, making UMD the first medical school in the country to offer a course on family violence as a health issue. Portions of that course are now part of the first-year medical student curriculum and cover topics such as violence against partners, children, and the elderly, ways for physicians to identify family violence, and intervention methods.

As a Kellogg National Leadership fellow from 1987 to 1991, Elliott worked part time on a curriculum on social justice while continuing her work at the family practice residency in Duluth. Her fellowship experience included living on the streets of Atlanta, working at the United Nations, and observing and consulting in poor countries around the world. She saw how resources around the world were allocated: who gets food and water and who gets to decide who receives resources. These experiences led her to delve into global issues of power and control, as well as medical ethics and family violence. In 1994, Elliott resumed full-time teaching and research at the UMD medical school.

A Pioneer

Elliott's role as a pioneer in the fields of family violence and medical ethics has taken her to clinical settings and conferences in Budapest, Scotland, and Singapore. "Barb has always been drawn to the cutting edge," says Byron Crouse, M.D., head of UMD's Department of Family Medicine. "She is often the first to go into an area and is never intimidated by the challenges she finds."

Others praise her pioneering research as well as her teaching abilities. "Barb was a pioneer in this field," says family physician Kathryn Halverson, M.D., one of Elliott's former students and a previous recipient of the MMA Stop the Violence Award for her work to reduce child sexual abuse. "She is a valuable resource in a larger context—teaching what it means to be a doctor. Her world of academics, physician education, and research is much broader than just violence. She teaches medical students, residents, and physicians to look at patients as part of a family system, as part of an entire community, and she

reminds us to be aware at all levels of how social justice issues affect people we see every day."

Thanks to the efforts of advocates and educators like Elliott, medical schools across the United States are doing a better job of preparing future health care providers to confront and deal with issues of family violence. "There's still much work to be done," Elliott says. "To successfully break the cycle of family violence via health care, it is not enough to just educate future doctors. We must find ways to raise the awareness of, and build skills among, practicing physicians to fully address the issue. Advocacy is part of our role as health care providers. Although we can't stop the actual abuse, we can break the cycle by taking time to identify and document it, provide victims with sensitive support and information, and make referrals to appropriate community resources."

Elliott continues to be inspired by her work. "What's important is today and tomorrow ... how to make a difference in the world around us," she says. "Working on social justice issues like family violence keeps me honest and in touch; it gives me energy!"

MM

Adele Yorde is a freelance writer in Duluth and a first-time contributor to Minnesota Medicine.

Questions to Ask Your Patients

Barbara Elliott, Ph.D., has worked on a Centers for Disease Control and Prevention project to determine what questions are most effective in assessing the presence or extent of family violence. These questions have been developed from a review of literature and tested in research:

1. Have you ever been hit, kicked, punched, or otherwise hurt by your partner?
2. Have you ever been afraid he or she would do that?

Elliott notes that the second question is just as important as the first. "The dynamics of violence suggest that a person may not get hit or get hit only once but will be controlled by the threat of violence for years."

Medicine Confronts Workplace Abuse



ILLUSTRATION BY KEITH SKEN

Twin Cities health care organizations are pioneering programs to prevent abuse in the workplace.

by Margaret Kaeter

A physician loses his temper when he finds that a patient's chart is incomplete. He yells at the nurse, berating her for not doing her job, jabbing a finger in her face, and throwing the chart on the floor.

A senior emergency room physician consistently ignores her team's advice, often teasing them about their "stupid" ideas. As a result, few of them say anything, even when they feel patients could be getting better care.

The nurse supervisor refuses to listen to a nurse's complaints of sexual harassment from an intern, saying, "There's nothing we can do about it anyway."

A clinic manager continually makes mistakes when ordering supplies, then blames others for the problems her errors cause.

A hospital administrator is always late for meetings, often keeping as many as 50 people from doing their work. When confronted, he replies, "I had more important things to deal with."

For health care workers, these incidents may sound all too familiar. When you're dealing with the decidedly more important issue of saving lives, it's easy to overlook idiosyncratic personalities and temper flare-ups. "That's just the way it is in health care," says a nurse at a Twin Cities hospital. "It's not fun, but you learn to have a tough skin if you want to help people."

Yet many local physicians and health care organizations are beginning to realize just how destructive these behaviors can be. "When we survey people, we find that 95 percent of them feel they have witnessed or been a victim of more abuse at work than at home," says Deborah Anderson, president of Respond 2, Inc., a Minneapolis-based consulting firm that has helped develop programs to prevent workplace abuse. "For the most part, we are talking about behaviors that rob people of their self-esteem, that affect productivity, morale, and even employee health."

While physical abuse does happen—more than 2 million American workers were physically attacked in the workplace in 1992, according to a 1993 survey—the abusive workplace is usually much more subtle, Anderson says. It's all those little things that make you cringe when you wake up in the morning, that make you feel unappreciated and keep you scanning the want ads. "It's as simple as not being treated with respect," says Anderson. "It's any behavior, no matter how small, that makes an employee doubt his or her self-worth ... or causes harm in the workplace."

Pinning down a concrete definition of workplace abuse is a large part of the problem organizations have in dealing with it, adds Anderson. "To one person, swearing is no big deal, while to another it's abusive. One person may feel intimidated by screaming, while another won't care. One person may have grown up and been educated in a culture that accepts controlling personalities, while another may find that management style abhorrent. It's a very difficult problem to define because each person interprets it differently."

Yet it's not something to take lightly. A 1993 study by the International Labor Organization reported that workplace stress cost American companies \$200 billion because it causes absenteeism, lower productivity, and rising health insurance and medical costs. In addition, a 1992 study by the St. Paul Companies showed that stress caused by work is more damaging than the most profound personal

problems, such as the illness or death of a loved one.

Like many others, Anderson has experienced workplace abuse firsthand. "I had worked several years at one organization, getting national recognition for changing the way rape victims were treated. Then I got a new supervisor, who didn't trust a thing I did. He would question where I was, what I was doing, and why I was doing it. I watched myself become less productive. My self-esteem plummeted as I started to question whether I could do this job, even though I'd been doing it for years. His distrust significantly lessened the quality of my work. It was destroying me."

Anderson believes that workplace abuse may be one of the most important public health issues in the United States. "I'm convinced that it's so embedded in our educational system that we have become immune to it," she says. "It's trained in to people in school—the more schooling someone has, the less able they are to identify abusive behaviors."

Health Care Confronts the Problem

In the early 1990s, while working with the Hennepin Medical Society on family violence issues, Anderson noted that surveys showed more serious abuse problems at work than at home. She reasoned that health care organizations were a natural place to develop and pilot programs that might eliminate abusive behavior in the workplace. "In the medical setting, we are used to talking about abuse in terms of patients," she explains. "We also are familiar with stress-related illnesses, so we have a reference point from which to start."

Anderson worked with a Hennepin Medical Society task force for two years to refine a five-stage program for identifying and addressing workplace abuse. About a year ago, the task force merged with the Health Care Coalition on Violence, which was formed in 1996 from the Governor's Task Force on Violence as a Public Health Problem to join health care organizations in the prevention, intervention, and treatment of violence. "We felt the coalition was the perfect group to take this over because we represent the Minnesota health care community working together," says Jill Heins, executive director of the coalition. "In addition, the workplace abuse program deals with an issue central to health care—creating healthier communities. If people learn to be less abusive at work, perhaps they will bring those behaviors home. And, if workers are less stressed, they likely will give better care to their patients." ➡



Because the definition of abuse can vary widely, the task force determined that any prevention program would need to come from the workers themselves. People at all levels of the organization would have to support it, and the committee would need to create customized solutions for each workplace's unique problems. "Unlike other abusive situations we are familiar with, workplace abuse has no distinctive pattern with standard solutions," says Anderson. "Each situation is very, very different."

The program would also require an ongoing commitment. "You must embed this in the organization," Anderson says. "About 70 percent of all workplace learning is informal. Consequently, if you just send people to some training, and then they come back to the same setting, nothing will change. You have to build behavior standards that are accepted by everyone."

David McCollum, M.D., an emergency physician in Waconia and a member of the Health Care Coalition on Violence, was one of the physicians who helped design the program. "Most national programs deal with post office syndrome—people who become extremely abusive as a result of stress or other problems," he says. "However, with this program, the goal is to change the organization's culture to a healthy environment where you can expect to be treated fairly and compassionately, where you feel you can bring up issues without fear of recrimination. Anytime you try to completely change a culture, you must accept a long, sometimes painful, process."

Two That Make It Work

A long and painful process indeed. When two Twin Cities health care organizations became pilot sites for the five-stage program, they found a few surprises. "When I first became involved in this, I was completely surprised at how many bad things happen in the medical workplace. It's very common to see arrogant physicians yell at nurses and interns, disregard their advice, or even tell them they're stupid," says Kathleen Sweetman, M.D., a pediatrician with Lakeview Clinic in Waconia and a staff member at Ridgeview Medical Clinic, one of the pilot sites. "This is a societal issue, but I'm amazed that there are people who don't see this as a problem at all."

Partners in Colon and Rectal Surgery Associates,

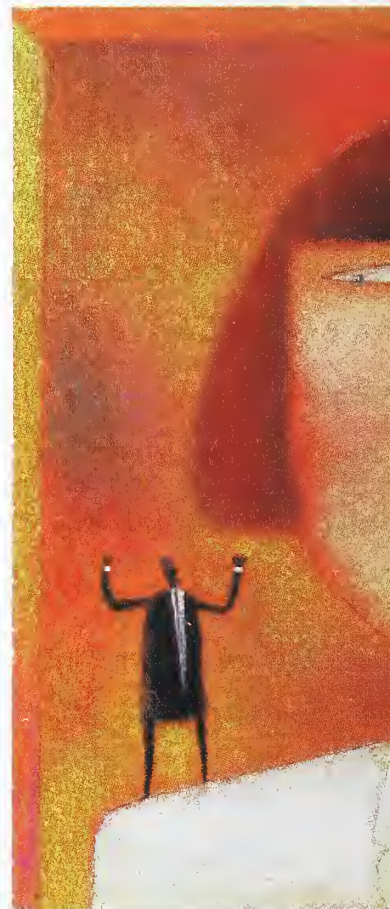
Ltd., in Minneapolis, became interested in the program as part of the practice's ongoing Continuous Quality Improvement efforts. The group was seeing high employee turnover and low morale at one of its four offices. After investigating, they found that disrespectful working relationships among the staff and physicians—including yelling, swearing, being late for meetings, and verbal putdowns—might be part of the problem. "The response to [the pilot program] was incredibly favorable right from the beginning," says Ann Lowry, M.D., a surgeon with the group and a champion of the program. "The employees loved that we cared about these behaviors."

Stage One: A Steering Committee

The first stage of the process involves gaining support from the administration and communicating that support to all workers. A steering committee is formed of employees from diverse areas of the workplace. The group writes a mission statement that brings everyone into the process. "This is where the effort can be won or lost," notes Anderson. "If top management and key opinion leaders don't believe this process will work, you likely won't get very far."

Colon and Rectal Surgery Associates consists of 15 physicians and about 50 employees. In addition to being a private surgical practice, the group also serves as the Division of Colon and Rectal Surgery at the University of Minnesota. Its abuse-prevention steering committee consists of 13 people, representing physicians, management, and other staff areas.

With more than 1,000 employees and about 90 physicians, Ridgeview Medical Center needs 24 steering committee members. "We knew that not everyone could come to every meeting, but we felt it was important to have a balanced



committee," says Sweetman. "Some members are more active than others, but the membership ensures we can get information to and from everyone."

In both organizations, the steering committee developed a mission statement that revolved around educating employees and doctors about abusive workplaces. It emphasized that even seemingly benign behaviors such as rolling your eyes, blaming, and swearing can dramatically affect co-workers' self-esteem, productivity, and morale.

Stage Two: The Survey

During the two years Hennepin Medical Society and Health Care Coalition on Violence task force members worked with Anderson to develop the workplace abuse prevention program, they spent a great deal of time measuring attitudes about abuse, the kinds of behaviors people find abusive, and levels of abuse in the workplace. The survey also compared perceptions of abuse at work to abuse at home.

To date, employees in education, health care, business, and government have completed more than 10,000 surveys. "The survey is reliable and valid," notes Anderson. "And it gives us a clear picture of what is happening in today's workplace."

For example, in one large metro-area health care organization, 96 percent of the workers said abuse contributes to or causes medical problems. Six out of 10 respondents said physicians were the most abusive, while more than half said they didn't bring up issues of disrespectful behavior because they feared job repercussions.

The survey is customized by the steering committee at each organization to reflect its unique workplace. For example, the Colon and Rectal Surgery Associates team tailored the survey by asking not just whether people feel an activity is abusive, but how

often they experience that behavior.

Each employee is sent an extensive survey, which may be as long as 20 pages. Survey results are sent to an outside firm, then Anderson writes a report comparing the findings with those of other groups. At Ridgeview, for example, nearly one-fourth of the Ridgeview employees and physicians who returned the surveys said they experience no abuse at work, according to Sweetman. This is a higher percentage than at most workplaces, Anderson notes.

Lowry's organization found that support staff were unclear about the details of their job expectations. "One individual might work with five doctors, so they felt set up to fail," she says. "They also wanted more information about the treatments we offer and the reason patients see us." Physicians were clearly perceived as the most frequent source of abuse at Colon and Rectal Surgery Associates. They also were significantly less likely than support staff to feel that managing by intimidation was abusive. The most common problems reported were fear and intimidation, actions that destroy self-esteem, and not enough supervision.

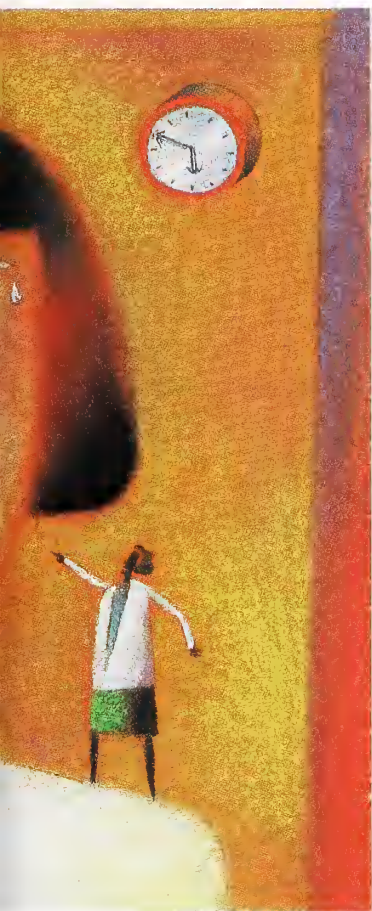
The survey results trigger a process that opens up everything for discussion, says Anderson. "This stage can become extremely uncomfortable for an organization, because they are venturing into sacred territory," she says. "They are looking at what has been accepted for decades and beginning to question it."

Stage Three: A Plan of Action

After approximately four months, the steering committee is ready to write a detailed plan and begin implementing it.

At Ridgeview, the steering committee developed four goals—reduce fear; create a workplace abuse communication plan; create anti-abuse education programs; and develop policies and procedures for prevention and intervention—each with many objectives. Objectives included offering training on sexual harassment and conflict resolution, starting a newsletter, making sure managers were held responsible for abusive behavior, and creating policies and procedures for dealing with disruptive behavior.

With survey results in hand, Colon and Rectal Surgery Associates began to formulate a plan. Groups of diverse employees were asked to list positive and



negative behaviors in staff and physician interactions. These behaviors became the basis for a values statement and a self-assessment instrument. Employees received customer service training, while all staff and physicians attended conflict resolution training. Once-a-month medical education sessions were launched, and detailed job expectations were added to job descriptions. The group also developed an abusive behavior intervention process.

Stage Four: Measurement

As the various training programs are implemented, the steering committee documents and measures results. Ridgeview is still developing its action plan, but Colon and Rectal Surgery Associates resurveyed its employees and physicians last fall, approximately a year after the program began. "In general, the behavior is better," notes Lowry. "There are still some issues, but people seem pleased that we're doing this."

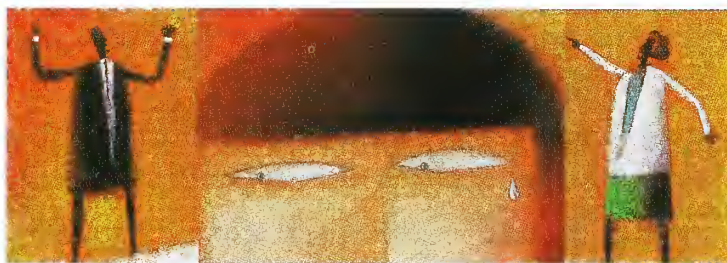
Lowry also provides anecdotal evidence of the program's effectiveness: "We had one staff member who said a physician often had two conversations at once, which made it difficult for her to determine exactly what the physician was asking her to do. She never felt comfortable talking to the physician about it until after the conflict resolution training. Then, the next time it happened, she simply said, 'Would you like to discuss this now or set up a time later today to talk about it?' He had no problem scheduling another time, and she was amazed at how easy the communication was."

More important, says Lowry, the employees say they want the process to continue. "They want education about these issues and they definitely want the steering committee to continue."

Anderson predicts that the program will become integrated into most of the workplaces that use it. "Over time, team members become the consultants,

taking over leadership and developing the expertise needed to sustain the change and promote an environment that is respectful, trusting, safe, and productive," she says.

"I think it's important to note that this isn't a magic wand," Lowry adds. "However, we have made good progress, especially in heightening sensitivity to the possibility of abuse at work and in the nonphysician staff feeling comfortable bringing up issues. I'm confident we'll make even more progress."



"We're learning that not any one of us has the expertise to solve this ... It's an important process for everyone to squirm through."

The Future

So far, everyone involved in the program feels positive about the results. Violence coalition director Heins hopes the work her organization is doing will set the stage for creating an abuse-free working world for everyone. "It reminds me of fraternities and hazing," she says. "No one is willing to break the cycle of abuse. As a medical community dedicated to creating healthy communities, it's important that we tackle this."

Sweetman says that for the steering committee at Ridgeview, it's been a learning process. "We're learning that not any one of us has the expertise to solve this. Everyone has a different perspective that is important," she says. "It's an important process for everyone to squirm through."

In the meantime, task force members are working to raise consciousness about workplace abuse across the nation. Last fall, the Minnesota Medical Association and the American Medical Association passed resolutions encouraging all health care facilities to adopt policies to reduce and prevent workplace violence and abuse. Anderson says the involvement of organized medicine is a critical step in legitimizing the issue. "When a group this influential in society says there is a problem, the rest of the nation sits up and listens," she says. "I think we can all be proud of the work we've done to get to this important juncture."

MM

Margaret Kaeter is a St. Paul-based freelance writer who specializes in science, business, and social science issues.



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ILLUSTRATION BY ANDREW POWELL



Violence Prevention

The Role of Health Care Systems

Health care leaders have an obligation to help put an end to violence in our communities.

BY DAVID STRAND

In 1994, the Minneapolis Department of Health and Family Support released its KIDSTAT report on children, adolescents, and violence. The report showed that the leading cause of death for Minneapolis youth ages 15 to 19 was homicide, which accounted for nearly one-third of the deaths. In fact, violence was named the No. 1 public health threat for youth in the city of Minneapolis. The following year, the city had its highest murder rate, prompting *The New York Times* to run a story warning readers to avoid dangerous "Murder-apolis."

In 1995, Gov. Arne Carlson appointed a task force to identify the role that private health care organizations could play in violence prevention. The

Task Force on Violence as a Public Health Problem, a coalition of health plans and health care and community organizations, made several recommendations.

The Health Care Coalition on Violence

The statewide Health Care Coalition on Violence (HCCV) was formed in 1996 to implement the task force's recommendations; its objectives are to improve health organizations' response to victims of violence. Thus far, HCCV has published violence prevention guides for hospitals and clinics and prenatal educators, as well as a research summary of the role of home visiting in child maltreatment preven-

tion (see the Special Report, page 29). It has also created a resource kit on workplace violence and offers statewide training sessions.

The HCCV also advocates the use of "e-codes," a coding system for reporting external causes of injuries. E-codes appear on hospital billing records and serve to tally the causes of nonfatal injuries. Through the HCCV's efforts, use of e-codes has increased dramatically. Preliminary e-code data have been used to help neighborhood coalitions identify the leading causes of injuries, who is injured, and the costs associated with the injuries. Data for the metro area will be available later this year.

Health Systems and Community Initiatives

The medical community has taken seriously its obligation to help promote safe communities. Identifying the roles that health systems can play is one important step. Those roles include screening, treating, and referring victims for services; providing data for policy and planning purposes; creating safe, abuse-free work sites; and lobbying for policies that promote safety.

Many health systems have focused their work in violence prevention to meet community needs. For example, the St. Cloud Hospital and Central Minnesota Task Force for Battered Women created a partnership to place a half-time advocate at the hospital as an on-site resource person for staff and to provide advocacy services. Last year, the foundation of HealthSystem Minnesota helped create a community center, clubhouse, playground, and basketball

court in the Meadowbrook neighborhood adjacent to Methodist Hospital in St. Louis Park. In addition, the foundation has helped provide a full-time police officer in the neighborhood.

In St. Paul, the staff of United Hospital and the United Family Health Center worked with Partners for Violence Prevention, a community group from St. Paul's West Seventh Street neighborhood, to develop a domestic violence screening and intervention protocol. Before this collaboration, only six patients at United Hospital were referred for domestic abuse advocacy during the first nine months of 1997. Since October 1997, after United began using the screening and intervention protocol, more than 250 patients have requested domestic abuse advocacy services. This surge in requested services suggests that when health systems screen for violence and abuse and offer services, people will seek help.

The success of these efforts has shown that health care organizations can collaborate effectively and make a difference. Because no single health system can have an immediate impact on violence, we realized early

on that collaboration among and a long-term commitment from community members and competing health systems are necessary. The Health Care Coalition on Violence continues to demonstrate that health care systems can help put an end to violence in our communities.

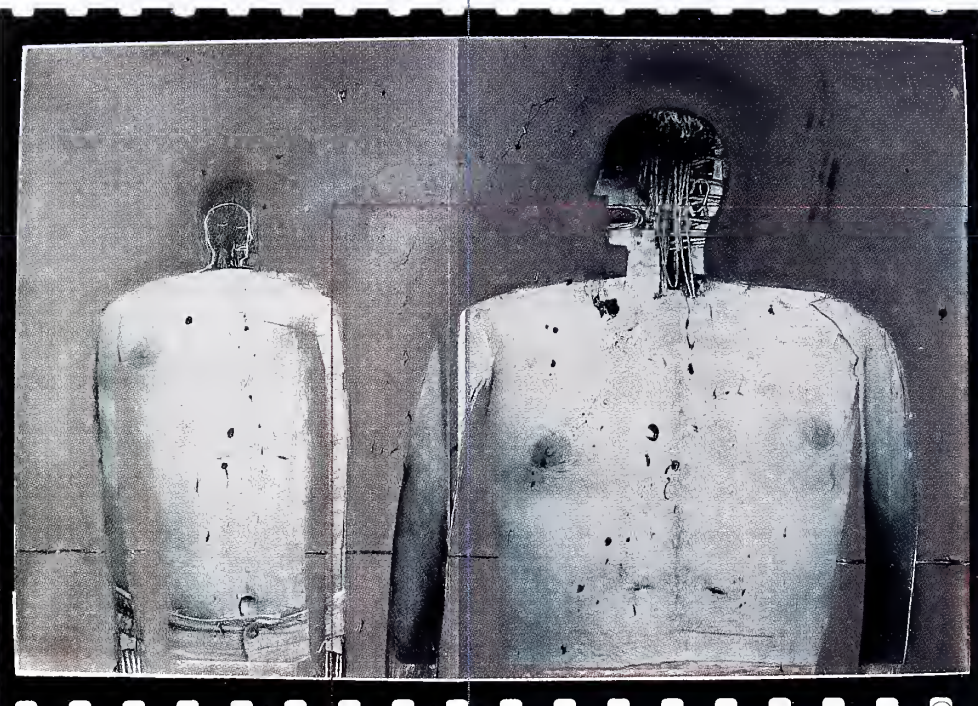
MM

David Strand is chair of the Health Care Coalition on Violence and president of Medica Health Plans, part of Allina Health System.

Health Care Coalition on Violence Board

David Strand, chair, Allina Health System
 Mary Braddock, M.D., M.P.H., Children's Hospitals and Clinics
 Janny Brust, Allina Foundation
 Fairview Health Services (to be named)
 Deborah Glass, Blue Cross & Blue Shield of Minnesota
 Stuart Hanson, M.D., HealthSystem Minnesota
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ASSESSING for DOMESTIC VIOLENCE in Gay, Lesbian, Bisexual, and Transgender Relationships

MARTHA OSTERBERG, M.S.W., L.I.C.S.W.

ACCURATELY ASSESSING FOR DOMESTIC VIOLENCE
REQUIRES A WILLINGNESS TO CHALLENGE ASSUMPTIONS
ABOUT GENDER AND VIOLENCE.

Acknowledging domestic violence in gay, lesbian, bisexual, and transgender relationships has historically been difficult for the public, the battered women's movement, and health professionals. Facing this issue means accepting that relationships between gay, lesbian, bisexual, and transgender (GLBT) people exist, that women can be perpetrators of domestic violence, and that men can be victims. These facts disrupt the dualistic paradigm that claims that people only pair in male-female couples and that all domestic violence is rooted in the oppression of women by men. This disruption can be quite unsettling, and many people would prefer to remain shrouded in denial.

Confronting Silence and Denial

Gay, lesbian, bisexual, and transgender victims of domestic violence may not be recognized because GLBT relationships remain largely invisible in the medical setting. Intake forms with questions about marital status often do not include the option of an unmarried significant relationship. Two men or two women living together are often automatically considered roommates. Bisexuals, when involved in a male-female relationship, are assumed to be heterosexual. Patients may not feel it is safe to reveal their sexual orientation, nontraditional gender identity, or dissonance between internal and external gender identity. If patients are afraid to come out and physicians are unaware or uncomfortable about inquiring, GLBT patients remain unacknowledged; when all patients are assumed to be heterosexual, we may make the mistake of looking only for male-to-female violence.

Within GLBT communities, many people would prefer not to acknowledge domestic violence out of

fear that the issue could be used as evidence of alleged "deviancy" or to support negative stereotypes. It is very difficult to ascertain the prevalence of domestic violence within GLBT relationships; obtaining a random sample is impossible, since many GLBT people will not risk disclosing their sexual orientation or transgender identity to an interviewer. The National Coalition of Anti-Violence Programs estimates that between 25 percent and 33 percent of GLBT individuals are abused by their partners; this statistic is comparable to the rate of abuse in heterosexual relationships.¹ (See also the Special Report, page 24.)

Challenging Assumptions Based on Gender

It's not necessary to know the statistical prevalence of domestic violence within the GLBT population to assess for domestic violence. In fact, assumptions based on prevalence or gender can be problematic.

For example, if the statistics are correct and 95 percent to 99 percent of violence in heterosexual relationships is male against female, then in one to five cases out of a hundred, a female will be the perpetrator and a male the victim/survivor. We need to sharpen our skills for assessing domestic violence and avoid making assumptions about the patients we see.

Similarly, to address domestic violence in GLBT relationships, we need to rethink some of our ideas about gender. Many women have wanted to believe that being with other women was safe, or that there was some kind of "lesbian utopia" free from violence. Acknowledging that women can perpetrate domestic violence has been considered risky, as it upsets the paradigm upon which the battered women's movement was based. Many advocates are understandably fearful of any erosion of the protection and legal rights battered women have gained. But accepting that female perpetrators exist does not mean disregarding the oppression of women as a powerful force in male-to-female violence.

Other gender-based assumptions need to be challenged as well. Many people believe, for example, that within a same-gender relationship, the larger or more masculine person is the perpetrator and the smaller or more feminine individual is the victim. That is a myth, just as it is a myth that sadomasochistic sexual practices, body piercing, leather attire, or frequenting the bar scene are indicators of domestic violence.

Patterns in Domestic Violence

There are many similarities between battering in heterosexual relationships and GLBT relationships. Domestic violence consists of a relationship dynamic in which one partner has primary power and control over the other. All types of abusive behavior—physical, sexual, verbal, emotional, psychological, economic—can be used to control a partner, regardless of gender. The danger is often greatest when the victim/survivor has decided to leave. The abuser feels he or she is losing control of the partner and will try even harder to regain that control, perhaps using lethal means.

A victim/survivor of domestic violence may stay in the relationship for a variety of reasons. He or she may believe the abusive partner is going to change. The abuser may exhibit genuine remorse, making repeated promises to stop the abusive behavior, which may follow a cyclical pattern. The abuser may

use threats to keep the victim in the relationship, such as threatening to hurt family or friends or take children away. In a GLBT relationship, the abuser may threaten to "out" the partner to family, colleagues, and employers. This threat can be a very powerful weapon, especially if the victim/survivor is a member of an ethnic or racial minority and could be ostracized by his or her family and community. Outing a partner who is a parent can have legal ramifications, as sexual orientation and transgender identity are still used against parents in custody disputes.

People also stay in abusive relationships when they perceive they have no safe place to go. Shelters have been designed for heterosexual women; lesbian or bisexual women often feign heterosexuality to avoid ostracism or homophobic reactions by staff or clients. Male or transgender victims/survivors have an even harder time finding safe haven, as do GLBT individuals in rural communities.

Gay and bisexual men who have battered their male partners also have difficulty finding appropriate treatment. Placing a gay man in a treatment group with heterosexual batterers is a risky venture, as the gay man may confront intense homophobia from the other men in the group.

Assessing for Domestic Violence

Accurate assessment of domestic violence is essential in providing safety for victims/survivors and effective treatment for perpetrators. When asking a patient about domestic abuse, always try to inquire without the partner present, since the victim/survivor is unlikely to answer honestly in front of his or her abuser. When questioning the victim/survivor, or when the situation is not clear, don't begin with words like "domestic violence," "battering," or "abuse." Many victims/survivors dislike being thought of as "victims." It is, of course, imperative not to ignore suspicions that domestic abuse is occurring and to ask questions. Simply naming and acknowledging domestic abuse can be a powerful intervention, but attempts to label a person too quickly may backfire. Instead, start with the least threatening questions and encourage the patient to paint the picture for you. Helpful questions include, "What happens when you and your partner disagree?", "If I saw an argument between you and your partner unfolding, what would I see?", and "Tell me about your worst fight."

In some same-gender abusive relationships, it's difficult to discern the victim from the perpetrator. This can have serious consequences. Referring a victim with posttraumatic stress disorder into treatment for battering can retraumatize the victim, who may also feel confused about who the perpetrator is. Child visitation or custody may be withheld, and custody may be given to the perpetrator.

Distinguishing Victims from Perpetrators

Part of the confusion over distinguishing perpetrator from victim is that the victim/survivor can also be violent. Sometimes an injured perpetrator will claim to be a victim. Since a physical injury doesn't automatically indicate victim/survivor status, it can be difficult to determine who is the perpetrator and who is the victim/survivor. Knowing some general characteristics of perpetrators and victims/survivors can help, but even these categories are not clear-cut. In her work with women who have been violent in their relationships, therapist Nancie Hamlett has come up with three motivations for women's violence in a primary relationship.² The "primary physical aggressor" uses violence and abuse to control a partner. She feels entitled to others' attention, putting her own needs and desires first. Other women are violent in self-defense—they use violence during attempts to get away from an abuser. Though these women may use violence, they do not have the power and control in the relationship. Hamlett calls the third motivation the "never again" mode, for women who have decided they will never again be victimized by a violent partner. These women usually have a history of being battered as an adult, and they use violence to avoid further victimization.

Hamlett points out that a relationship between women can appear to be mutually abusive if, for example, a primary physical aggressor's partner acts in self-defense or is in the "never again" mode. It is important not to assume mutual abuse when it appears that both individuals have been violent.

What distinguishes a perpetrator is a pattern of

controlling and intimidating behavior, not isolated acts. Look for threats to take the children away or leave the relationship if the partner isn't more sexually responsive, threats to reveal the partner's HIV status or sexual orientation, accusations and interrogations about supposed flirting or cheating, threats or actual abuse of pets, or any threat of retaliation.

It is important to ask broad questions as well as a variety of specific questions, since many perpetrators eagerly (and sometimes honestly) claim, "I have never hit him (her)." In fact, a perpetrator's main characteristic is an unwillingness to take full responsibility for his or her abuse and violence. A perpetrator may say, "I am not abusive," or "My partner is crazy, not me." Perpetrators often claim not to remember specifics about their own behavior, focusing instead on the partner's behavior. Perpetrators often perceive themselves as the victims in the relationship, claiming they would not need to be violent if their partner would only know when to stop talking or leave the room. They spend considerable time and effort in attempts to control their partners instead of learning to control themselves.

Victims/survivors, on the other hand, are more likely to focus on their own behavior. They may blame themselves for their partner's behavior. They more readily admit their own verbal abuse or acts of violence, and they minimize or rationalize their partner's abuse. The victim/survivor may believe he or she is responsible for the relationship problems. Without outside validation and "reality checks," the victim/survivor comes to doubt his or her own reality.

In severe or long-term battering situations, victims/survivors will exhibit symptoms of post-

traumatic stress disorder, such as an exaggerated startle response, hypervigilance, emotional reactivity, or dissociation when talking about past abusive incidents. They will often show signs of being intimidated by and acquiescing to their abuser.

These characteristics are general guidelines, not universal principles. For example, some victims/survivors may be able to recognize that the abuse is not their fault and accurately see themselves as the victim. As Hamlett says, "There is no single question that clearly distinguishes 'angry victims' from 'minimizing perpetrators.'"² Often it is best to refer a patient to an advocate, agency, shelter, or therapist who can more accurately assess the situation.

Conclusion

Relationships between gay, lesbian, bisexual, and transgender partners often go unrecognized by health care providers. Thus, a first step in recognizing domestic violence in GLBT relationships is to recognize the relationships themselves. GLBT victims/survivors face the same abusive dynamics and barriers

that any victim/survivor faces, as well as additional obstacles to leaving the relationship.

It is affirming to recognize and validate GLBT patients. But physicians and other health care providers can begin to assess for domestic violence in GLBT relationships without necessarily knowing how to categorize each patient. Moving beyond categories and assumptions, we begin to treat each person as a unique individual and learn to assess more accurately for domestic violence with every patient, regardless of sexual orientation, gender presentation, or gender of the partner. **MM**

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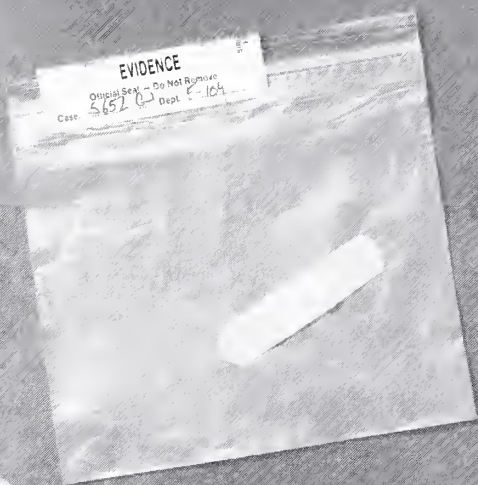


Exhibit A: Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.

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Domestic Violence in Gay Male Relationships

A survey of gay men in the Duluth area shows that domestic violence is as common in gay male partnerships as in heterosexual relationships; 39% of the survey respondents reported experiencing partner violence in at least one relationship.

Marc Weber, B.S., and Barbara A. Elliott, Ph.D.

Domestic partner violence is estimated to affect over half a million gay men each year.¹ Little information on this topic is available, and nothing has been published in the medical literature. The articles that do exist are primarily nonempirical and speculative; some unpublished graduate work has summarized data collected from gay male populations about their experience with partner violence.

Few studies have investigated the prevalence of violence in gay partnerships. To our knowledge, Harms' master's thesis is the only study dealing exclusively with domestic partner violence in gay and bisexual men.² Harms sampled 393 men in a gay neighborhood in San Francisco in 1995. Twenty-six percent reported perpetrating violence on their most recent partner, and 25.5% reported being a victim of their most recent partner's violence. Similarly, in a doctoral thesis written in 1988, Gardner studied violence among 42 heterosexual, 43 lesbian, and 39 gay male couples.³ This study estimated the lifetime prevalence of violence to be 28% in heterosexual couples, 48% among lesbian couples, and 38% in gay couples. A review article by Koss⁴ found the lifetime prevalence of domestic violence in heterosexual relationships to be between 25% and 33%; the limited studies we have been able to find imply similar prevalence in gay partnerships.¹ Overall, however, there have not been enough studies to draw conclusions about the prevalence of domestic violence in gay men's relationships.

It is well documented that heterosexual women experience emotional, social, physical, and sexual violence.⁵ An unpublished master's thesis by Merrill suggests that gay men also experience physical, emotional, financial, and sexual abuse in their partnerships.⁶ In Gardner's study, emotional abuse was the most prevalent type of violence experienced by gay men.³ There is no published research on the dynamics of gay male domestic violence. One consequence of violence for heterosexual women is that after they leave an abusive relationship, they are less likely to be involved in future relationships.⁷

Our study sought information about the extent, type, and dynamics of partner violence in gay male relationships.

SAMPLE POPULATION

Since identifying a formal sample for this project was difficult, we elected to reach men in public places. Questionnaires were made available at two sites frequented by gay men and were mailed to 30 members of the local GLBT Pride Committee. Twenty-three questionnaires were returned. Although we do not know how many eligible men decided not to complete the form (other than at least seven members of the GLBT group), the respondents represent a sample of gay men living in and around Duluth, Minnesota.

The men filled out a self-report questionnaire with 57 questions; there was also space for participants to write comments about their experiences. The questionnaire was based on a form designed for use with heterosexual women,⁵ with appropriate changes made for the gay male population.

Domestic partner violence was defined as any unwanted or forced physical or sexual contact, as well as a report of two experiences of emotional and/or social abuse in any one relationship. Specific behaviors were used to define the types of violence—emotional abuse, social abuse, moderate battery, severe battery, and sexual abuse (see Table 1). For example, emotional abuse included making fun of a partner or withholding approval; moderate battering included pushing or slapping.

RESULTS

The group who completed our survey represented a well-educated, middle-class sample. Table 2 describes respondents' characteristics. The mean age of the 23 participants was 37, with a range of 22 to 56. Consistent with the regional population, all respondents were Caucasian. Fifty-seven percent (13 of 23) graduated from college, and all were employed. Ninety-one percent (21 of 23) were employed full time, and 9% (2 of 23) were employed part time. Eighty-three percent (19 of 23) said they pay for medical care through insurance.

Thirty-nine percent (9 of 23) of respondents reported having experienced partner violence; among these men,

Table 1

Indicators for types of abuse

Emotional abuse

- Makes fun of you and/or what you believe in
- Withholds approval and/or affection
- Humiliates you

Social abuse

- Tells you who you can see and when
- Controls your access to transportation
- Uses money to control you

Violence with material things

- Throws things
- Breaks things
- Punches things

Moderate battery

- Pushes you
- Slaps you

Sexual abuse

- Forces you to have intercourse

Severe battery

- Punches you
- Kicks you

Use of weapons

- Uses a gun to threaten you
- Uses a knife to threaten you

the mean age was 34, and 78% (7 of 9) had graduated from college. All were employed full time, and 89% (8 of 9) reported paying for their medical care with health insurance.

There were no statistically significant differences between the men who reported having experienced violent relationships and those who did not. The two groups of men were well educated, were employed, had health insurance, and were of similar age.

PREVALENCE

As displayed in Table 3, 39% (9 of 23) of the respondents reported having experienced domestic partner violence in at least one of their long-term relationships. Overall, 23 men reported having 43 long-term relationships to date; nine men reported 12 violent relationships.

TYPES OF VIOLENCE

Each violent relationship included many types of abuse, with emotional and social abuse reported most commonly. Sexual violence was reported least often. Seven of the 12 violent relationships (58%) included physical battery, and over 30% of the victims of domestic partner

Table 2

Sample characteristics of respondents

	All N=23	Abused N=9
Age	37	34
Race (% White)	100%	100%
College	57%	78%
Employed	100%	100%
Full	91%	100%
Part	9%	—
Insured	83%	89%

violence reported fighting back when they were hit or otherwise physically assaulted.

PARTNER DYNAMICS

Only 44% of the gay men who reported experiencing partner violence in past relationships were living with a partner at the time of the survey, in contrast to 84% of those not previously in violent relationships.

Only one of the nine gay men who had injuries inflicted by a partner reported that his family physician asked him about partner violence when he presented for care. Remarkably, 100% of victims said they were willing to talk to their family physician about partner violence.

DISCUSSION

Our findings indicate that domestic violence does occur in gay male relationships, at a prevalence rate similar to the rates reported in heterosexual domestic partnerships.^{4,5,7} This result is consistent with the few previous studies that have investigated violence in gay male partnerships.^{1-3,6}

The similar prevalence of violence in gay male and heterosexual partnerships can be explained using the concept of power within all relationships: when one partner uses words and force to control the other, violence can result, regardless of the gender of the partners. Although there is an assumed equality of power in gay relationships since both partners are men, this project provides evidence that a power differential can exist between gay partners, and it may be expressed with violence (see related Commentary, page 18).

The types of violence described by gay men in our project replicate the experiences reported in previous research. As mentioned above, Merrill reported that gay men experienced many types of abuse in their partnerships,⁶ and Gardner's study found that emotional abuse was the most prevalent type of abuse experienced by gay men.³ We also investigated the dynamics and conse-

Table 3

Prevalence, types, and dynamics of abuse in gay men (in %)

Prevalence	23 Respondents	12 Relationships*
Ever	39	
Current	17	
Past	26	
Types		
Emotional	36	83
Social	30	58
Physical	26	58
Sexual	9	17
Weapons	9	17
Dynamics		
Fighting back		30
Currently living with long-term partner†	84	44
Willing to talk with M.D. about violence		100

*Nine respondents reported having experienced 12 violent relationships.

† $sp < 0.05$

quences of being in a violent relationship. Gay men in this project were approximately half as likely to be living with a partner at the time of the survey if they had experienced domestic violence in an earlier relationship as men who had not experienced domestic violence.

IMPORTANCE FOR PHYSICIANS

Our project highlights the need for physicians to be aware of domestic partner violence in same-sex relationships. Medical education does very little to inform doctors of domestic violence issues in gay male partnerships.

In fact, gay men who experience domestic abuse face several unique barriers to receiving medical (as well as advocacy and legal) interventions. When a gay man reports domestic abuse, his sexual orientation becomes obvious. Being public about one's sexual orientation can lead to loss of jobs and health insurance, among other consequences. Nonetheless, all the men who responded to this survey said they were willing to discuss their sexuality with their physicians, so this concern may be less of an issue in medical settings than in other, less confidential settings.

The lack of specific services for gay male victims and perpetrators of domestic violence is another barrier faced by gay men, and in turn, by their physicians. Most of the advocacy groups that serve female victims of domestic violence do not serve male victims.⁸ When a physician recognizes that a man is part of a violent couple and

attempts to find services to assist him, there are few to be found.

More general discrimination also interferes with male victims receiving the services they need. In the past, this societal discrimination was even codified in some domestic violence laws.⁹ For members of the gay community, admitting that domestic violence occurs in gay partnerships raises fears about being further stigmatized for being gay. For those who are not gay, recognizing same-sex domestic violence requires an acceptance that same-sex relationships exist.

Violence does occur, and men are being injured. Physicians need to screen for partner violence among their patients. Although few community resources are available for referral, a physician can address the medical needs and social consequences of the violence.

STUDY LIMITATIONS

The major limitation of this project is the small number of men who responded to our survey; thus, our ability to generalize the findings is limited. The sensitive nature of this topic, along with financial, time, and human subjects committee constraints, made identifying and contacting potential participants difficult.

The need to maintain the safety and anonymity of participants was critical, which further reduced our access to men who were already difficult to identify. Nonetheless, the similarity of our findings to those of other studies is remarkable.

CONCLUSIONS

Among the gay men who completed the questionnaire, nearly two in five indicated they have had a violent partner in a long-term relationship. The types of violence they reported included emotional, social, sexual, and physical abuse, sometimes severe. The violent relationships they described had consequences for the men's future relationships. The men also reported that they sought medical help for their injuries and were willing to talk with their physicians about domestic partner violence.

Physicians should screen all their patients—heterosexual and homosexual—for domestic violence, since abuse occurs commonly in both groups. An awareness of the range of violent behaviors, their potential escalation, and the consequences for future relationships may be life-saving.

MM

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AUTHOR'S NOTE

Dr. Elliott is now working with another medical student in Duluth, investigating the prevalence, types, and dynamics of partner violence among lesbian women in northern Minnesota. Information from that project will be available in late spring.

Marc Weber is a fourth-year medical student at the University of Minnesota Medical School. Barbara Elliott is associate professor and director of clinical research in the Department of Family Medicine and professor in Behavioral Sciences at the University of Minnesota-Duluth School of Medicine.

Portions of this project were presented at the Minnesota Academy of Family Physicians meetings in Minneapolis, Minnesota, March 1997, in fulfillment of funding obligations.

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Can Home Visiting Prevent Child Maltreatment?

AN EFFECTIVE STRATEGY TO PREVENT VIOLENCE

Home visiting enhances parents' ability to provide better care for their children.

Janny D. Brust, M.P.H., and Marguerite M. Rheinberger, J.D., M.P.H., M.A.

The reality is that children and families who are hurt by maltreatment cannot wait until research provides the answers. In the meantime, the best available information can be used to guide the development of policies and programs."¹

Child maltreatment, which involves the physical, sexual, and emotional abuse or neglect of a child under age 18 by the person responsible for that child's welfare, is pervasive in American society. In 1996 in Minnesota, 13 children died as the result of maltreatment, 72 suffered life-threatening injuries, and there were 25,435 reports of alleged maltreatment.² Child maltreatment cuts across socioeconomic, cultural, and religious groups with emotional, societal, and economic costs that are staggering. Child maltreatment is preventable and health care professionals can help ameliorate it.

In Minnesota, the Health Care Coalition on Violence (HCCV), created in 1996 to promote violence prevention and intervention by the health care community, has examined strategies for preventing violence toward children. Members of the HCCV Data Collection and Research Committee interviewed 24 local and national child maltreatment experts, including physicians, about the strategies they believed would have the most impact on preventing child maltreatment. Of those strategies, home visiting was most often mentioned.

HOME VISITING

Home visiting is designed to enhance parents' abilities to provide better care for their children by referring them to community resources, providing health education, teaching them about child growth and development, modeling good parenting, and performing risk or health assessments of the home, child, and mother. It can be performed by public health nurses, registered nurses, social workers, paraprofessionals, and volunteers. In general, its goal is to enhance parents' ability to provide better care for their children in the prenatal and postnatal periods.

HOME VISITING EFFECTIVENESS

The committee examined home visiting effectiveness

through a search of relevant literature and found 42 articles on home visiting programs in the United States, including studies designed with control groups or pre/post tests. Information was also gathered on more than 25 home visiting programs in Minnesota. Funding and goals of these programs are quite diverse.

Many of the studies confirmed that home visiting reduced the risk for or incidence of child maltreatment.³⁻⁸ Some studies, however, found little or no effect.⁹⁻¹¹ Studies did show that no harm was caused by home visits. Overall, the studies outlined several benefits of home visiting, including improvements in health outcomes for both the mother and the child. For example, studies showed improved health outcomes related to pregnancy, such as less pregnancy-induced hypertension,¹² fewer subsequent pregnancies,^{6,12,13} and longer spacing between subsequent pregnancies.¹³ Improvement in maternal health was also seen in a reduction of tobacco use,¹⁴ better nutrition,^{4,14} and decreased depression.^{14,15}

Studies demonstrated improvement of parents' life skills, such as obtaining and maintaining employment and completing high school,^{13,14} and showed an increase in parents' knowledge about the growth and care of newborns¹⁶ and earlier identification of children's illnesses.¹⁷ Several studies showed improvement in parent-child interaction.¹⁸⁻²²

Home visiting also improved child health care and child safety.^{10,21,23} Children experienced fewer injuries, including ingestions,^{10,14,24} fewer visits to the emergency department,^{5,10,21} and fewer hospitalizations for injuries.^{8,12,25} Well-child care visits and immunization rates increased,⁸ and out-of-home placement declined.²⁶

The research ignored or inadequately addressed what components make up a high-quality home visiting program, such as who should deliver services, what type of services should be offered, and how frequent the visits should be.¹⁴ The research review did not find any published studies on whether home visits should be targeted at those most at risk or offered to everyone. Information is limited on the cost savings and benefits of home visiting and how they compare with those of other interven-

tions,²⁷ although studies did show a decreased use of Aid to Families with Dependent Children, food stamps, and other welfare programs.^{4,6,14,24}

DEVELOPING A HOME VISITING PROGRAM

David Olds, Ph.D., a renowned expert on the effectiveness of home visiting services and an author of nine of the 42 studies reviewed, and Harriet Kitzman, Ph.D., have recommended that an effective home visiting program should do the following:²⁸

1. Have a comprehensive focus:
 - Teach risks of certain behaviors like smoking.
 - Devise individualized strategies for behavior change.
 - Emphasize the enhancement of maternal life-course development.
2. Involve frequent visits.
3. Be staffed by well-trained professionals (especially nurses).
4. Serve families initially at elevated risk for poor outcomes.

CONCLUSION

The use of home visiting to reduce or prevent child maltreatment has wide appeal. The coalition's report has helped raise questions about what is needed for a successful program.²⁹ Physicians and other health care providers should support research that assesses the components of a quality home visiting program. By doing so, they can play an important role in reducing child maltreatment and improving the health outcomes of mothers and children.

MM

Janny Brust is director of research at the Allina Foundation and co-chair of the Health Care Coalition on Violence's research committee. Marguerite Rheinberger is a research scientist consultant for the Allina Foundation.

Copies of "A Review of the Research on Home Visiting" by Janny Brust, Jill Heins, and Marguerite Rheinberger can be obtained by contacting the Health Care Coalition on Violence, 2829 Verndale Avenue, Anoka, MN 55303, 612/576-1825, fax 612/427-7841.

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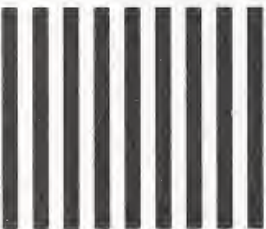
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ANNOUNCEMENTS



Heart Healthy Conflict Resolution Tips Available

Celebrate Valentine's Day by offering patients a copy of the MMA's "Heart Healthy Tips on Conflict Resolution." Perfect for display on bulletin boards and in patient waiting areas, "Heart Healthy Tips" offers several nonviolent alternatives for resolving conflict. Single copies are available free of charge, and you can order bulk quantities by calling Shirleyanna Webb at the Minnesota Medical Association at 612/378-1875 or 800/DIAL MMA (342-5662).

Also, be sure to read this month's *Minnesota Medicine* cover story, "Medicine Confronts Workplace Abuse" (page 10), which explores the innovative efforts of Twin Cities health care organizations to bring conflict resolution training to the medical workplace.

Medical Malpractice Changes Appear Inevitable

Although the MMA was able last year to successfully stave off legislation lengthening Minnesota's medical malpractice statute of limitations, the proposal isn't going away. Support for changing the statute has grown significantly at the Capitol, and Minnesota Medical Association legislative staff believe the best strategy now is to try to mitigate the impact of such a change by pushing for broader tort reform.

The current statute is two years after treatment ends, and an increasing number of legislators believe it's unfair that the statute

can run out before a plaintiff is aware that harm may have been done. While many lawmakers also point out that Minnesota's statute is among the shortest in the nation, the MMA responds that most other states also have enacted tort reforms Minnesota lacks: limits on damage awards, limits on attorney fees, caps on noneconomic damages, and minimum qualifications on "expert witnesses."

The task before the MMA is to persuade the Legislature that such reforms must accompany any change in the statute of limitations—otherwise malpractice premiums, "defensive medicine" practices, and health care costs overall are certain to rise.

"The goal now is to try to incorpo-

rate some balance," said Dave Renner, MMA director of state and federal legislation. "If we're going to be compared to other states on our statute of limitations, then we have to look at all the reforms other states have adopted."

Last year, MMA members and staff fought off a proposal to triple the length

of the malpractice statute of limitations by changing it to two years after *discovery* of alleged harm but no more than six years from the last treatment in three types of cases. Those cases were: 1) transmission of a communicable disease; 2) in the House version, misdiagnosis of malignancy; in the Sen-

“
If we're going to be compared to other states on our statute of limitations, then we have to look at all the reforms other states have adopted.”

Dave Renner, MMA director of
state and federal legislation

ate version, misdiagnosis of cancer, leukemia, and lymphoma; and 3) a foreign object left in the body.

Many physicians suspected that fears of HIV transmission from provider to patient—of which there have been no documented cases—were at the root of that legislation.

The current proposal, authored by Sen. Don Betzold, DFL-Fridley, and Rep. Henry Van Dellen, R-Plymouth, includes the same "discovery" provision. It passed the Senate Judiciary Committee in early January, where several lawmakers—including Sen. Sheila Kiscaden, R-Rochester; Sen. Deanna Wiener, DFL-Eagan; and Sen. Thomas

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VIEWPOINT

Paul C. Matson, M.D.

Chair, MMA Board of Trustees



Repeal the Provider Tax—Save MinnesotaCare

Our years of hard work are paying off. Three bills to repeal the provider tax were introduced in the first days of the 1999 legislative session. This didn't just happen; it was the result of persistent MMA efforts.

Lawmakers are well aware of the MMA's position. Ever since the tax on health care revenues was first proposed, the MMA has vehemently opposed it. At the same time, we have supported MinnesotaCare, the state program to reduce the number of uninsured families.

MMA lobbyists and leaders are telling legislators that it's as unfair to tax health care to pay for MinnesotaCare as it would be to tax students and teachers to pay for public education. The health care tax is hidden; it's seldom listed on medical bills, but shows up in higher out-of-pocket medical costs and insurance premiums. The tax burden falls most heavily on the sick and on people with lower incomes—those who can least afford it. And for physicians, the hassle of administering the tax is not only irritating, it adds to our overall health care costs.

The MMA increased our lever-

age at the Capitol by bringing 20 other health care organizations together in the Coalition for Replacing the Provider Tax.

Many lawmakers were convinced by MMA arguments long ago. But they couldn't find another funding source for MinnesotaCare that former governor Arne Carlson would accept.

Now the stalemate has ended. With a surplus in state coffers and the tobacco settlement money, Minnesota can afford to fund the MinnesotaCare program—and even expand it—without continuing a tax that should never have been levied in the first place. This is the year to make an all-out effort.

Gov. Jesse Ventura also favors repealing the provider tax, but unfortunately, he has shown a surprising lack of enthusiasm for the MinnesotaCare program, characterizing it as “socialized medicine.”

I hope we can change his mind.

Studies have shown that MinnesotaCare has reduced the number of people on welfare by nearly 10 percent, saving taxpayers about \$2.3 million per month. The program also helps hold down the number of Minnesotans without insurance.

Since 1992, the percentage of uninsured Minnesotans has remained steady at about 9 percent while the nation's uninsured rate has soared to over 15 percent.

As physicians we've been pleased to see MinnesotaCare enrollees come in for preventive care. The program also reduces the number of people who show up in the emergency department for sore throats and earaches.

The MMA is urging Gov. Ventura and Minnesota legislators to give MinnesotaCare their backing—and to replace the provider tax.

The MMA, with its broad base of nearly 10,000 members and its credibility as an advocate for the health of all Minnesotans, has a chance to get rid of the tax without jeopardizing health care for the uninsured. But according to Dave Renner, MMA director of state and federal legislation, it's not a “done deal.” There's support in the House, but we face a tougher struggle in the Senate.

Join us. Call your legislator today. If your colleagues are not MMA members, please tell them: This is the year to join the MMA. We need every physician on our side. ■

MMA Working for Better End-of-Life Care

Two Minnesota Medical Association physicians will help lead end-of-life-care education programs for their colleagues across the state.

In an ongoing effort to promote quality care for patients who are dying, the MMA sponsored the participation of two physician-educators in intensive, three-day regional conferences on end-of-life issues. The physician-educators, Rebecca J. Hafner, M.D., and Mark Leenay, M.D., will share information and ideas on palliative care, symptom management, ethical decision-making, and psychosocial issues with other Minnesota physicians over the next two years.

The regional conferences are part of the EPEC project, or Education for Physicians on End-of-Life Care, initiated by the American Medical Association and the Robert Wood Johnson Foundation. Topics explored at the EPEC conferences include delivering news of a life-threatening diagnosis;

conducting a basic patient assessment in end-of-life care; helping manage imminent dying and bereavement; handling prognostic uncertainty; and responding to requests for physician-assisted suicide.

Hafner, MMA vice president and chair of the Committee on Ethics and

“It was a pretty intense two-and-a-half days. The volume and quality of the material we covered is just amazing.”

Rebecca Hafner, M.D.

Medical-Legal Affairs, took part in an EPEC conference January 15-17 in Phoenix. “It was a pretty intense two-and-a-half days,” she said. “The AMA is really to be congratulated; the volume and quality of the material we covered is just amazing.”

Hafner said EPEC will give her access to supplementary materials—

such as tapes, slides, and Power Point presentations—“everything we need to put this extremely well-done curriculum into place.” She plans to work with the MMA in convening a series of one-day seminars in cities across Minnesota later this year. The Committee on Ethics and Medical-Legal Affairs also has discussed the possibility of convening several town hall forums to reach non-physicians and “develop a greater understanding of patient views and concerns about end-of-life care.”

Hafner, a family physician, is medical director at Saint John's Abbey and University in Collegeville.

Leenay, a family physician and geriatrician who has extensive experience as a hospice director and educator, will participate in an EPEC conference in Atlanta February 19-21. Leenay is president-elect of the Minnesota Medical Directors Association and serves as a member of the physician division of the Minnesota Hospice Association. ■

MMA Helps Develop Family Violence Prevention Guide

The Health Care Coalition on Violence has created an innovative new guide designed to help educate expectant parents about family violence prevention.

The guide, *Family Violence Prevention: A Prenatal Educator's Guide*, may be the first of its kind in the nation. It grew out of the coalition's recognition that:

- Pregnancy is a special “window of opportunity” to share family violence prevention messages.
- Expectant parents often bring a strong readiness to learn to prenatal class.

- Parenting is not an instinctive behavior.

- It's common for new parents to feel overwhelmed, anxious, inexperienced and/or inadequate.

- Parents can learn the skills needed to create positive, safe, and nurturing homes for themselves and their children.

Jill Heins, the coalition's executive director, said many childbirth and parenting preparation classes have traditionally focused heavily on labor and delivery—offering only brief discussion of the long-term changes in the family dynamic that

a new baby brings. After surveying prenatal educators around the state, the coalition found that prenatal education programs often don't explore the ways in which the couple's relationship is likely to change, Heins said.

“Labor and delivery last for 24 hours or so,” Heins said. “Parenting lasts for 24 years.” The challenge is to help prenatal educators better equip expectant parents for the challenges they'll face *after* coming home from the hospital—and for years to come.

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GUIDE *cont. from 35*

The guide is geared toward the advancement of three primary goals: (1) that parents provide an environment for themselves and their children that is supportive, loving, and nonviolent, (2) that parents have realistic expectations of parenthood, and an enhanced understanding of child development issues, to promote a safe family environment, and (3) that parents seek continued parenting education and supportive resources throughout the child's life.

In developing the guide, the coalition incorporated messages already used in prenatal education programs around the country, and with the help of child development experts, created new messages about topics not typically addressed in prenatal classes.

The Minnesota Medical Association is a member of the coalition; Dave McCollum, M.D., represents the MMA on the HCCV board. McCollum is an emergency physician with Emergency Physicians and Consultants, P.A., of Waconia.

The coalition is promoting the guide at parenting education conferences and through various public health agencies throughout Minnesota. Single copies are available free of charge to physicians; contact Jill Heins at the Health Care Coalition on Violence at 612/576-1825. She can also give you information about ordering more than one copy.

MMA President Judith F. Shank, M.D., a longtime advocate of parent education, is excited about the concept of incorporating family violence prevention into prenatal classes.

"We know that family violence tends to be self-perpetuating," Shank said. "The sooner we can intervene in this cycle, the more effective we can be." ■

Ramstad, Luther Named to Influential Committees

Two Minnesota Congressmen have been named to key committees in the House of Representatives.

U.S. Rep. Jim Ramstad was appointed to the Health Subcommittee of the Ways and Means Committee, which has extensive jurisdiction over health care and Medicare issues. Ramstad, a Republican, represents Minnesota's Third Congressional District.

U.S. Rep. Bill Luther was named to a seat on the House Commerce Committee, which has jurisdiction over consumer protection, health care, trade, tele-

communications, energy policy, and environmental protection. A Democrat, Luther represents the state's Sixth District.

"This is significant for us," said MMA CEO Paul S. Sanders, M.D.

"It's the first time Minnesota has had representatives on important Congressional committees since Sen. Durenberger was in office.

"We will work with Luther and Ramstad to get our message across, and make sure Congress understands issues that affect Minnesota doctors and their patients," Sanders said. ■

TORT *cont. from 33*

Neuville, R-Northfield—offered amendments providing for other tort reforms supported by the MMA. Only one of those amendments, which ensures that cases time-barred by the current law aren't reopened, passed.

Some legislators, including Betzold, have indicated an openness to possibly getting rid of the discovery piece and simply changing the changing the statute from two years to four, Renner said.

Next, the bill moves to the Senate health care committee, where MMA legislative staff hope to convince members that changes in the statute must only be made in the context of broader tort reform. Check the MMA Center for Physician Advocacy home page at www.mnmed.org. ■

Jacott Earns F. Marian Bishop Award

Longtime MMA and AMA activist William E. Jacott, M.D., has been chosen to receive the 1999 F. Marian Bishop Award.

The award recognizes individuals who have significantly enhanced the academic credibility of family medicine. Jacott was selected for the honor by the Society of Teachers of Family Medicine Education Foundation Trustees; he is slated to accept the award April 30 at the STFM Annual Spring Conference.

Jacott is associate professor and head of the Department of Family Practice at the University of Minnesota Medical School. ■

NEWS DIGEST

*People and places
making medical news*



People & Places

Robert Kane, M.D., received the Philadelphia Geriatric Center Polisher Research Institute Award of the Gerontological Society of America at the society's annual meeting in Philadelphia in November. The Polisher award recognizes significant contributions to the field of applied gerontology. Kane is director of the Center on Aging at the University of Minnesota and Minnesota Chair in Long-Term Care and Aging at the university's School of Public Health. He has earned a national reputation for his work over the past 30 years as a clinical geriatrician, researcher, teacher, and administrator. Much of his work concerns long-term care and other issues affecting the elderly.

Tom McSteen, J.D., M.A., was named executive director of the new Office of Health Care Consumer Assistance, Advocacy and Information. The office was created during the last legislative session to give Minnesota health care consumers information about their rights in the health care system and to help them resolve disputes with HMOs. McSteen led the Minnesota Board of Social Work since 1991; before that, he was an assistant attorney general in the Minnesota attorney general's office. In his new position, he reports to the commissioner of the Minnesota Department of Health.

The Center for Molecular and Cellular Therapy at the University of Minnesota was dedicated January 6. The center will support research on new biological therapies such as gene therapy, allowing researchers to take those therapies from the laboratory research stage to clinical trials. Jeffrey McCullough, M.D., has been appointed director of the center and holder of the Variety Children's Association Chair in Molecular and Cellular Therapy, which carries a \$1 million endowment. A clinical pathologist, McCullough has 20 years' experience developing therapeutic blood products for the university and the American Red Cross.

The HealthEast Woodbury Clinic opened January 4, providing family practice, internal medicine, pediatric, certified nurse-midwife, obstetrics/gynecology, mental health, and physical rehabilitation services. The clinic is the first phase of the \$52 million Woodwinds Health Campus, a joint project of HealthEast and Children's Hospitals and Clinics that will eventually also include a 70-bed hospital and a diagnostic and treatment facility. The new clinic, with 20 providers, is in a three-story, 79,300-square-foot medical office building. Interim medical director for Woodwinds Health Campus is Craig A. Svendsen, M.D.

Rapid growth in the east-metro

area has prompted HealthPartners to build a major addition to its two-year-old Woodbury clinic. Construction will provide more space for primary care, obstetrics/gynecology, pharmacy, laboratory, radiology, and dental care. At the same time, the company announced it is closing its Ramsey Clinic in Maplewood on February 26 and will convert the Skyway Clinic in Minneapolis to a dental-only facility March 1.

The Minnesota Department of Health awarded \$430,000 in grants to agencies and organizations that are working to prevent the spread of HIV. The funds will be used to support HIV testing and outreach activities for persons at high risk for HIV infection. The grant recipients are the Red Door Clinic; Room 111; University Affiliated Physicians/North Memorial; Face to Face Clinic; the Minnesota AIDS Project; and the Youth and AIDS Project.

The Hughes Institute has opened the Hughes Clinic in Roseville, providing care in general pediatrics and oncology. With 39 staff members, including six physicians, the clinic can see 50 patients a day, including 20 leukemia/lymphoma patients, and can handle highly complex cases. The Hughes Clinic will also participate in clinical trials of new drug therapies developed by the Parker Hughes Cancer Center. ➡



Socioeconomics

HMOs Need to Offer More Information, Survey Finds

Under Minnesota's Patient Protection Act, consumers have the right to get information from HMOs about such issues as grievance procedures, referrals to specialists, a plan's approved prescription drug list, and reimbursement arrangements with providers. But an investigation by the Minnesota attorney general's office suggests that HMOs need to do a better job of answering consumer questions.

Investigators posed as prospective HMO enrollees and asked HMO customer service employees for information that is stipulated in the Patient Protection Act. While each of the 13 HMOs provided some information, none gave everything that was requested. More than half of the HMOs failed to provide a majority of the policies required by law.

In announcing the survey results, Attorney General Hubert Humphrey III said the state's HMOs have agreed to conduct a public information campaign and to do a better job of training customer service representatives.

Settlement Will Help Low-Income Residents Pay for Prescription Drugs

Minnesotans with low incomes will be eligible for money to help defray costs for prescriptions under a settlement agreement with 23 large pharmaceutical manufacturers. The companies will pay \$64.3 million to end multi-state class-action lawsuits filed in 1996. The suits claimed that

discounts given to hospitals and health plans resulted in higher prescription drug prices for consumers.

In Minnesota, the settlement has created a \$2 million fund that will be targeted toward low-income residents who are not on Medical Assistance. Questions about the settlement are being handled by a national hotline, 800/790-8476, or through the Web site www.rxconsumerlit.com.

Report: Minnesota HMOs Are Improving Their Preventive Care

Minnesota's HMOs are doing a better job of providing preventive care, but they could do more to help detect and manage some public health problems, according to a report by the Minnesota Department of Health. The report lauds HMOs for high rates of mammography, noting that mortality rates from breast cancer fell when mammograms became a priority for health plans.

Health department officials would like to see success rates improve in three other key areas—childhood immunizations, cervical cancer prevention, and prenatal care.

The data also show that people enrolled in commercial HMOs received preventive care more often than those enrolled in Medical Assistance and MinnesotaCare HMOs. Several HMOs have acknowledged that they need to do more to improve health care for people in government programs. Caryn Ireland, director of health quality improvement at Medica Health Plans, told the Minneapolis *Star Tribune* that part of the challenge is to overcome language and transportation barriers, which tend to be more prevalent in Medical Assistance populations.

The health department began collecting information on HMO preventive care a few years ago and issued the report as part of an effort to improve health by focusing more attention on preventive care. ■



Research & Innovations

symptoms, rash, tingling or numbness of the arms and legs, and severe sinusitis.

FDA Approves Lyme Disease Vaccine

The Food and Drug Administration approved the first vaccine to prevent Lyme disease, the nation's most common tick-borne ailment and an increasingly serious problem in Minnesota, Wisconsin, the Northeast, and California. The vaccine, Lymerix, made by SmithKline Beecham Pharmaceuticals, requires three injections over a year to build immunity. After three doses, the vac-



Asthma Medication Linked to Rare Complication

Physicians should carefully watch asthma patients who take the drug Singulair for signs of a rare but serious complication called Churg-Strauss syndrome, manufacturer Merck & Co. warned. Churg-Strauss syndrome is a tissue disorder that, untreated, can destroy organs. Signs of the condition include flu-like



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cine is 78 percent effective. It is recommended for people aged 15 to 70 who live or work in wooded areas where deer ticks are present. It is not yet approved for use in children.

FDA Commissioner Jane Henney noted that since the vaccine is not 100 percent effective, people should continue to take other precautions in grassy or wooded areas, including wearing light-colored clothing, long pants, and long-sleeved shirts.

Study Finds Smokers Have Higher Divorce Rate

Divorce rates are more than 50 percent higher for smokers than nonsmokers, according to two Minnesota researchers. Although smoking doesn't cause divorce, smokers are more likely to experience a number of psychosocial problems that can break up marriages. The researchers, Eric Doherty and William Doherty, Ph.D., said that if subsequent research supports their conclusions, people could consider smoking a potential trouble sign for an unstable marriage.

Eric Doherty initiated the study in 1995 while he was a senior at Macalester College. His father, a professor of family social science at the University of Minnesota, helped him sift through data from two years of the General Social Survey, an annual random sample of American adults' opinions. The study appeared in the December issue of *Families, Systems & Health*.

The Dohertys found that 49 percent of smokers had experienced divorce, compared with 32 percent of nonsmokers, giving smokers a 53 percent higher risk of divorce. This difference held up even after the researchers adjusted for education level, income, and race. They cited other studies that have linked smoking with a pattern of psychological

factors commonly associated with divorce, including poorer mental health, feelings of hopelessness, nervousness or tension, cynicism, depression, anxiety, and bulimia.

Back Strengthening Exercises Help Patients Avoid Surgery

Patients with acute or chronic back pain can often avoid surgery if they participate in an aggressive strengthening program to build up the muscles along the spine, according to Minneapolis physician Brian Nelson, M.D. Nelson worked with 38 patients who had been diagnosed for cervical or lumbar surgery, putting them through a 12-week aggressive strengthening program. At the end of the study, 35 patients canceled their surgery, and they were still in good health after 16 months.

Nelson, an orthopedic surgeon, is director and president of Physicians Neck and Back Clinic in Minneapolis. His study was published in the January *Physical Medicine and Rehabilitation*.

Chest Pain Units Could Save Lives, Money

Keeping patients with chest pain in the emergency department for observation and evaluation could save lives and money, according to Mayo Clinic researchers. The study, published in the December 24 *New England Journal of Medicine*, focused on chest-pain observational units (CPUs). In a CPU, some patients with chest pain are observed in the emergency department instead of being hospitalized immediately. These patients undergo diagnostic tests and may be admitted if they need more tests or treatment.

When CPUs were used to evaluate patients with unstable angina, the costs of cardiac care were reduced by about 60 percent for some patients. CPUs can also save lives by



preventing people at high risk of having a heart attack from being sent home too soon.

"The results were so promising that we converted the chest pain observational unit into everyday clinical practice within one month of completing the study," said Peter Smars, M.D., a Mayo emergency medicine specialist and the study's lead author.

Fairview-University Medical Center in Minneapolis was one of the first Twin Cities hospitals to implement a CPU, last April. Between 300 and 1,000 hospitals nationwide have added a CPU. The units are growing in use partly because of the difficulty of diagnosing chest pain, Smars said.

Study Labels Experimental Heart Drug Dangerous

Vesnarinone, an experimental drug

that showed promise in treating patients with congestive heart failure, is dangerous, according to University of Minnesota researcher Jay Cohn, M.D. The drug, which makes a weakened heart beat more powerfully, was associated with cardiac arrest, presumably because of arrhythmia, in a study that appeared in the December 17 *New England Journal of Medicine*. Because of potential legal liabilities, Cohn said he doubts any drug company would choose to market the drug.

Researchers Offer Treatment Advice for Brain Aneurysms

In a study involving brain aneurysms, researchers from the Mayo Clinic found that surgery may be far riskier than leaving an unruptured aneurysm alone, depending on the size of the aneurysm and the patient's medical history. More than 2,700 patients at

53 hospitals in the United States, Canada, and Europe participated in the study, which was led by Mayo Clinic neurologist David Wiebers, M.D., and published in the December 10 *New England Journal of Medicine*.

The study found that the risk of rupture was less than one-twentieth of 1 percent per year in people with aneurysms smaller than 10 millimeters and no history of ruptured brain aneurysms. In contrast, the risk of disability or death from surgery was 10 percent or higher the first year. Wiebers said the findings should not be taken as a warning against any surgical treatment of aneurysms. Each case must be decided on its own, and for larger aneurysms, surgery remains an important option. ■



Rates, Trends & Data

Medicare HMO Premiums Rise

Premiums for some of the state's most popular Medicare HMOs have increased 15 to 35 percent for 1999, forcing some seniors to pay more than \$50 a month to keep their coverage, especially for plans that cover prescription drugs. Plans with premium hikes include Medica SeniorCare, Group Health Partners for Seniors, and HealthPartners 65+.

"We all expected the rates to go up," said Kate Stahl of the Minnesota Senior Federation in a Minneapolis *Star Tribune* article. "But everybody was surprised at the scope of

the increases. They are much higher than anybody really expected."

Medicare plans that are closed to new enrollment, such as Blue Cross's Medicare & More HMO and HealthPartners' Senior Choice I, held rate increases down to 3 to 6 percent.

The federal government has dramatically limited payments to Medicare HMOs, forcing health plans to turn to consumers to cover more of the costs. In addition, health plans say, prescription drug costs are becoming so high that they have no choice but to raise premiums. "Anyone who is angry at us is missing the point," said George Halvorson, HealthPartners chief executive, in the *Star Tribune* article. "People ought to be extremely angry at the drug companies. ... If drug manufacturers sold drugs in the U.S. for

the same price as they sold them in other countries, we would need a fraction of that rate increase."

Minnesota Has Third Highest Health Insurance Coverage

Nearly 91 percent of Minnesota residents have health insurance, the third-highest rate in the country, according to a study published in the December *American Journal of Public Health*. Hawaii ranked first, with 92.5 percent of residents having health insurance in 1997. No. 2 on the list was Wisconsin, with 408,000 uninsured residents, or 8 percent of the population. Minnesota's 438,000 uninsured residents represent 9.2 percent of the population. Texas had the highest number of uninsured residents—more than 4.8 million, or 25 percent of the population. Arizona and Arkansas also had high rates of uninsured residents. ■

Rural Aspects of Violence against Women

Marion Kershner, P.H.N., M.S., Dianne Long, M.S., and Jon E. Anderson, Ph.D.

ABSTRACT

In this study, we examine the prevalence of abuse (physical, emotional, and sexual) in women seeking care in rural medical clinics and WIC voucher pickup sites; study demographic characteristics related to abuse; and study barriers rural women face when seeking help with abuse. Data were collected in eight medical clinics and 17 WIC supplemental food program sites in nine counties of west-central Minnesota during January and February 1997.

Twenty-seven percent of WIC and 18.3% of clinic respondents reported experiencing some sort of abuse in the past year. Women who reported being single, divorced, or separated had a significantly higher risk of current abuse than married women. Single women with a recent marital status change had a particularly high risk of current abuse. Aspects of isolation, such as limited access to a telephone and few outside social contacts, were associated with current abuse even after adjusting for other relevant variables. Women reporting previous abuse were most likely to identify aspects of rural life as barriers to obtaining help from health care providers. The tendency of rural women to rely on family and friends, self, and religious beliefs for support presents a barrier to obtaining help from health care and other service providers.

The health care setting has long been recognized as a valuable entry point into services for abused women. Previous research found this is especially true for women in rural areas, where services may be located in a distant community.^{1,2} Health care professional organizations have urged providers to screen women for abuse during preventive care visits, as well as visits for treatment of illnesses and injuries.^{3,4} However, health care providers have been slow to incorporate screening into their practices.⁵ Efforts to educate rural health care providers about abuse have been limited by the lack of information about the extent and characterization of abuse in rural populations.

Studies in urban health care settings have reported current involvement in an abusive relationship in 5.5% to 28% of subjects.⁶⁻¹³ Few studies focus on rural women, but one study of 136 women presenting for care in two rural medical clinics found 20% to 28% of women had experienced recent abuse.¹⁴ In a study of the medical records of 63 pregnant women seeking care in rural West Virginia, 19% of the women reported recent or past abuse; 6.3% were treated for physical abuse during the pregnancy.¹⁵ Another study of 280 women presenting for care in a rural clinic found that 8% of the women reported physical abuse in the last year and 34% had experienced some form of abuse in the past.¹⁶

In our project, we examined the prevalence of physical, emotional, and sexual abuse in women seeking care in rural medical clinics and in Women, Infants, and Children (WIC) supplemental food program sites. We also identified demographic and other characteristics potentially related to abuse, described in Kershner et al., 1998.¹⁷

Isolation and other factors associated with rural life have been identified as potential risk factors for domestic violence.^{1,18,19} One of our goals was to examine the relationship between abuse and the isolation of rural life. Other aspects of rural life may also have implications for service providers in rural areas. Previous research has found that the realities of rural life greatly influence rural residents' concept of health and their health-seeking behaviors.²⁰ Rural residents are characterized by self-reliance, lack of anonymity, a high tolerance for health impairments, and reliance on informal networks. Rural people also tend to consider themselves healthy if they can do their jobs (i.e., milk cows, take care of children). Barriers to seeking health services include fear of receiving insensitive treatment and fear that friends or relatives might find out.²¹ Lack of access to advocacy services was also common among rural dwellers.²

RESEARCH METHODS

PARTICIPANTS AND SURVEY ADMINISTRATION

During January and February 1997, we surveyed adult women seeking care in eight medical clinics and 17 WIC program sites in nine counties in west-central Minnesota. These counties are served by the Region 4 Council on Domestic Violence, the only source of legal advocacy and shelter for battered women and their children in the region. One medical clinic located in South Dakota was also used as a data collection site because it serves many women living in the Region 4 Council area. The WIC program sites were in county public health departments and were staffed by public health nurses. Data were collected in towns and cities

ranging in population from 543 to 12,874. Thirteen of the communities have populations of less than 3,000.

We trained medical clinic nurses and WIC staff in survey administration and told them that privacy and safety should take precedence over survey participation. Staff received brochures describing the services of the Region 4 Council on Domestic Violence, and phone numbers for domestic violence services were printed at the bottom of the survey form.

Women 18 years of age and older were the target population for this survey. A contact log recording date of visit, birth date, and marital status was established for each woman presenting for care. Staff also noted reasons for exclusion from the study. A woman was ineligible if her partner was present, or if she was impaired due to acute illness, diminished mental capacity, severe developmental disability, serious visual deficiency, physical disability, illiteracy, or a language barrier. Survey forms in Spanish were available.

Women were offered the survey while they waited in the physician's examining room or following their appointment with WIC personnel. Staff introduced the survey by emphasizing that completing it was voluntary and by guaranteeing participants' anonymity. This information was also included on the survey form.

If a woman agreed to complete the survey, she was given a letter of consent, the survey form, and a blank envelope. Respondents placed their completed survey in a secure box on site. To preserve anonymity, no names or coding numbers appeared on the survey or the envelope. Of 2,053 women eligible for inclusion in the study, 1,693 agreed to complete the survey, for a response rate of 82.4%.

SURVEY INSTRUMENT

The self-administered survey could be completed in seven to 12 minutes. It contained questions on demographic characteristics such as age, education, marital status, income, and employment status. Questions about the subject's partner, pregnancy, home environment, and past and current abuse were also included.

DEFINITIONS

Women were considered to have experienced current abuse if they answered yes to any of the following questions: 1) "During the past 12 months, have you been physically abused? This includes being hit, slapped, kicked, pushed, choked, grabbed, or otherwise physically hurt by someone else"; 2) "During the past 12 months, have you been emotionally or verbally abused? This includes yelling, swearing, putdowns, threats, jealousy, stalking, and other words or actions intended to control another person"; and 3) "During the past 12 months, have you been sexually abused? This includes any kind of forced or unwanted sexual activity." The same three questions were used for abuse prior to age 18, and abuse that occurred after age 18 but before the last 12 months.

STATISTICAL METHODS

To evaluate the associations of independent variables with current abuse after adjusting for potential confounding variables, we used a multivariate logistic regression model with current abuse as the response variable. We specified a set of theoretically relevant control variables to help examine confounding and effect modifications with respect to the independent variables of interest. This set of control variables included age, whether the survey was filled out at a WIC site, education, and marital status. We used a multivariate logistic regression model and a stepwise model selection procedure to help identify a set of variables most associated with current abuse. The Hosmer-Lemeshow goodness-of-fit approach²² was used to assess model adequacy.

RESULTS

DATA OVERVIEW

Of 1,693 eligible subjects, 582 completed the survey at a WIC site and 1,111 women filled it out at a clinic. Subjects' median age was 34.95 years, and 87% had completed 12 or more years of education. The racial composition was 94% white, 4% Native American, and less than 1% each Hispanic, Asian, and African-

American. Sixty-four percent of the subjects were married, 23% single, 5% divorced, 5% widowed, and 2% separated.

Our sample reflected the population characteristics of the region, with two exceptions. Four percent of our sample was Native American, compared with 1% of the population, because many Native American women go to two of the survey sites. The sample is also younger than the population as a whole, which we expected because much of our sampling took place at WIC sites, which serve women of childbearing age.

Table 1 presents the prevalence of current abuse for women surveyed at WIC sites, clinic sites, and all sites combined. Women at the WIC sites experienced a higher level of current abuse (27%) than subjects at clinic sites (18.3%). After adjusting for important variables like age and marital status, however, we found that subjects responding to our survey at WIC sites were no more likely to have experienced current abuse than those at medical clinics. The level of current abuse for all clinic and WIC sites combined was 21.4%. These percentages are roughly consistent with the levels of abuse reported in urban settings.

Table 1 also breaks the composite measure of current abuse into components—physical, emotional, and sexual abuse—for clinics and WIC sites. Emotional/verbal abuse was the most common, followed by physical and sexual abuse. The current abuse status was missing for 3% of subjects.

Table 1 also shows composite measures of abuse that took place before age 18 and between age 18 and one year ago. About 35% of women experienced abuse before age 18, and 37% experienced abuse as an adult before the last year.

FACTORS ASSOCIATED WITH ABUSE

Variables such as age and marital status have been associated with current abuse. To examine the relationship between current abuse and other possible explanatory variables, we adjusted for other known risk variables through multivariate logistic regression modeling with current

Table 1*

Summary of Abuse Variables

Variable	WIC n (%)	Clinic n (%)	Combined n (%)
Current physical abuse			
Yes	60 (10.4)	46 (4.3)	106 (6.5)
No	516	1012	1528 (93.5)
Current emotional/verbal abuse			
Yes	150 (26.0)	189 (18.0)	339 (20.8)
No	426	863	1289 (79.2)
Current sexual abuse			
Yes	20 (3.5)	14 (1.3)	34 (2.1)
No	555	1040	1595 (97.9)
Composite of current abuse			
Yes	156 (27.0)	194 (18.3)	350 (21.4)
No	422	867	1289 (78.6)
Composite of before 18 abuse			
Yes	252 (43.8)	323 (30.4)	575 (35.1)
No	324	739	1063 (64.9)
Composite of 18 to year-ago abuse			
Yes	233 (40.5)	367 (35.0)	600 (37.0)
No	324	681	1023 (63.0)

Current abuse was defined as an event within the past 12 months. Before 18 abuse is defined as any abuse that occurred before age 18. Abuse from age 18 to a year ago is denoted as 18 to year-ago.

*Kershner M, Long D, Anderson J. Abuse against women in rural Minnesota. *Public Health Nurs* 1998;15:422-31. Reprinted by permission of Blackwell Science, Inc.

abuse as the response variable.²²

Tables 2 and 3 give odds ratios and confidence intervals estimated from a logistic regression model with current abuse as the response variable. Explanatory variables are presented in the tables. The final columns in these tables estimate the odds ratio for a category level relative to a comparison category, denoted by an asterisk. Next to this estimate is a plausible range of values (95% confidence interval) for the odds ratio in this population. Estimated odds ratios around 1.0 imply that the category has a risk of abuse similar to that of the comparison category. Estimated odds ratios and confidence intervals with values above 1.0 imply that the category has a greater risk of abuse than the com-

parison category. Similarly, estimated odds ratios of less than 1.0 imply that the category has less risk of abuse than the comparison category.

Demographic variables: Age was related to current abuse in our analysis. As age increases, there is less risk of current abuse. The data do not suggest any relationship between current abuse and education level, income, race, or employment status.

We found that widowed women have significantly less risk of abuse than married women, and single, divorced, and separated women have significantly more risk of abuse than married women. However, these effects need to be interpreted within the context of another important variable: recent marital status change. A recent marital status change was de-

fined as any change in marital status—such as married to divorced or separated to single—within the past 12 months. A recent marital status change is strongly associated with increased risk of current abuse in our analyses. The adjusted analyses show that the effect of a recent marital status change depends on the current marital status. In particular, women who currently report being single and had a recent marital status change are at significantly higher risk of current abuse than women reporting any other combination of marital status and status change (see Table 2).

Isolation variables: Table 3 shows that women with aspects of isolation were at increased risk for abuse in the past year. A lack of regular access to a telephone and vehicle was related to increased risk of current abuse. However, that risk does not appear to be higher for women with reduced access to both telephones and vehicles than for those with reduced access to one or the other. That is, having only one isolation characteristic increases the risk of current abuse, but the additional attribute does not increase the risk further.

The number of personal contacts outside the household was significantly associated with risk of current abuse. Women who reported infrequent personal contacts (zero to one per week) have approximately twice the risk of current abuse than women with more than four outside household contacts per week, after adjusting for other variables.

The risk of current abuse for women with two to four outside household contacts per week was modified by their level of access to the survey site. Those with limited access to the site were at significantly more risk than those with more social contacts. Women with high access to the survey site (building within walking distance) who had two to four social contacts per week were not at higher risk of current abuse compared with women with more than four contacts per week. For women with very few or many outside contacts per week, the lack of close access to the building does not seem to place them at significantly

Table 2

Logistic Regression Results: Demographic Variables

Characteristic	Final Model Odds Ratio (95% CI)
Age (years)	.98 (.97, 1.00)
Intimate partner status	
Married	*
Single	1.33 (.92, 1.92)
Divorced	2.31 (1.36, 3.92)
Separated	2.99 (1.26, 7.11)
Widowed	.12 (.02, .93)
Education	
Less HS grad	.79 (.48, 1.32)
HS grad	*
Some post-secondary	1.02 (.76, 1.38)
Recent partner status change, not single	
Yes	1.77 (1.04, 3.02)
No	*
Recent partner status change, single	
Yes	6.15 (3.44, 10.98)
No	*
Surveyed at WIC site	
Yes	.76 (.55, 1.05)
No	*

Estimated odds ratios and confidence intervals are provided for the logistic regression model. Reference categories are denoted by *.

increased risk. However, for women with two to four outside household contacts per week, being farther than walking distance from the survey site was associated with a significant increase in risk.

BARRIERS TO OBTAINING HELP FROM HEALTH CARE PROVIDERS

We included 12 questions on the survey to learn what factors might make it difficult for a rural woman to speak with a health care provider about abuse experiences. These questions were motivated by previous research into the lives of rural people.^{2,20,21} All respondents answered these questions, not just those who had experienced abuse. The first part of each question read, "It would be hard for me to go to a clinic and talk

to a doctor or nurse about abuse in my life because" A summary of the responses to these questions is presented in Table 4. The barrier items identified by 19% or more of the respondents were shame (20.7%), lack of anonymity (19.1%), staff might talk about them (23.1%), self-reliance (27.7%), reliance on family and friends (26.0%), and reliance on God (31.9%). These issues provide a good place to start looking for ways to reach rural women who may be reluctant to discuss abuse with health care providers.

VARIABLES RELATED TO BARRIERS

We also studied the subject characteristics associated with the barriers. For each barrier question, we performed multivariate logistic regression modeling to identify

subject characteristics related to the response. All logistic regression models included these variables: age, education, intimate partner status, recent partner status change, and if the subject completed the survey at a WIC site.

Without exception, women who reported some sort of abuse in their lives were more likely to answer yes to all the barrier questions. Table 5 summarizes the results of this analysis.

IMPLICATIONS FOR PRACTICE

Our survey results suggest avenues for health care providers to improve the services they offer women. For example, we identified access to a telephone as an important risk factor. We will encourage health care providers in the region to allow women who disclose abuse to use a telephone at the health care site to call a domestic violence advocate. This is an inexpensive and easy change. Our findings also support the need to continue and expand the cellular phone program available to at-risk women through the Region 4 Council on Domestic Violence.

The survey also identified lack of personal contacts as an important risk factor for abuse. The Region 4 Council plans to implement a community mentorship program and to pursue funding for expanded home follow-up visits. Public health nurses who do home visits after the birth of a child could screen women for violence and provide information about community resources.

We found that women who experienced violence before age 18 were much more likely to report current abuse. This confirms the need for presentations at schools and public health services that emphasize early intervention.

Our research supports the findings of earlier studies outlining characteristics of rural people that influence their concepts of health and health-seeking behaviors.^{20,21} These characteristics—self-reliance, a network of family and friends, and a strong sense of spirituality—can also be viewed as strengths. The preference to rely on family and friends may serve as a secondary outreach.

Table 3

Logistic Regression Results: Isolation Characteristics

Characteristic	Final Model Odds Ratio (95% CI)
Person contacts outside household	
0-1 per week	1.97 (1.32, 2.93)
More than 4 per week	*
Person contacts outside household, at low access to building	
2-4 per week	1.64 (1.15, 2.33)
More than 4 per week	*
Person contacts outside household, at high access to building	
2-4 per week	.60 (.26, 1.36)
More than 4 per week	*
Low access to building, at high or low person contacts	1.15 (.79, 1.67)
Low access to building, at 2-4 person contacts	3.15 (1.42, 6.97)
Low access to telephone, at high access to vehicle	2.66 (1.51, 4.69)
Low access to telephone, at low access to vehicle	.95 (.49, 1.81)
Low access to a vehicle, at high access to telephone	1.87 (1.21, 2.88)
Low access to a vehicle, at low access to telephone	.67 (.32, 1.39)

Estimated odds ratios and confidence intervals for isolation-related variables.
Reference categories are denoted by *.

As women are screened and educated in the physician's office, perhaps the patient's sister or friend may benefit from the information.

Abused women were significantly more likely to identify barriers to obtaining help, which points to the need to provide in-service education for health care providers.

Women who reported incomes over \$40,000 were more likely to identify the barriers of shame and fear that clinic staff might talk about them. Those with incomes under \$20,000 were more likely to say that their partner may not have allowed them to go to a clinic. This may explain cancellations or missed appointments.

Over 30% of respondents said, "I would rather rely on God to help me." This suggests that clergy need to understand the dynamics of domestic violence and become aware of the advocacy programs available.

We also found that women who were abused in the past are more likely to report current abuse. This suggests that health care providers have opportunities to screen and provide information to abused girls and women over their life span.

LIMITATIONS

Our study was limited by reliance on clinic staff to present the survey consistently across sites. The subjects were those who presented for health care, a group that may differ from the population at large. The survey was administered at clinics, and the literature reports that women in abusive relationships use medical services less frequently than nonabused women. It should also be noted that women with a partner present were excluded from the study. Thus, we expect that our findings underrepresent the extent of abuse in the region.

CONCLUSIONS

This study shows that rural women who presented for health care have experienced abuse at a rate similar to their urban counterparts. We have found further evidence that isolation is associated with abuse. Lack of access to a vehicle and telephone and lack of social contacts outside the home were identified as risk factors

Table 4

Summary of Barrier Question Responses

Question Number	Question	Number Yes (%)	n
1	Ashamed to tell someone	320 (20.7)	1545
2	Might be seen by someone	291 (19.1)	1527
3	Clinic staff might talk among themselves	351 (23.1)	1519
4	Clinic staff might not understand	232 (15.3)	1517
5	Had bad experiences with doctors or nurses	124 (8.2)	1520
6	Partner not allow a clinic visit	48 (3.2)	1520
7	Family/friends might be angry	77 (5.1)	1516
8	Afraid children would be taken	127 (8.4)	1506
9	Rather handle problems alone	418 (27.7)	1511
10	Women need to learn to live with abuse	32 (2.1)	1514
11	Rather rely on family/friends	388 (26.0)	1493
12	Rather rely on God	474 (31.9)	487

Table 5

Logistic Regression Results: Barrier Questions

Question	Characteristic	Final Model Odds Ratio (95% CI)
Ashamed to Tell	Surveyed at WIC site	.65 (.46, .91)
	Current abuse	1.94 (1.40, 2.68)
	Abuse before age 18	2.42 (1.80, 3.24)
	Income	
	Over \$40,000	1.65 (1.11, 2.43)
	Under \$40,000	*
	Subject employment status	
	Seasonal vs other levels	2.32 (1.13, 4.76)
Clinic Staff Talk	Surveyed at WIC site	.71 (.51, .98)
	Prior abuse as adult	2.00 (1.37, 2.47)
	Abuse before age 18	1.84 (1.36, 2.47)
	Income	
	Over \$40,000	1.64 (1.13, 2.36)
	Under \$40,000	*
Rely on Family/Friends	Surveyed at WIC site	1.42 (1.06, 1.92)
	Age (One Year Increase)	.98 (.97, .99)
	Intimate partner status	
	Single vs married	1.5 (1.12, 2.08)
	Person contacts outside household	
	0-1 per week	.63 (.41, .96)
	2-4 per week	1.15 (.85, 1.54)
	Greater than 4 per week	*
	Current abuse	1.58 (1.14, 2.20)
	Prior abuse as adult	1.46 (1.09, 1.97)
	Subject employment status	
	Seasonal vs other levels	2.25 (1.12, 4.53)

Estimated odds ratios and confidence intervals are provided for statistically significant variables for logistic regression models. Reference categories are denoted by *.

for current abuse.

Because many rural women have family and friend support systems, screening programs can also be effective when the patient tells other family members or friends about available services. Only 15% of the respondents reported ever having a discussion with a health care provider about abuse.

Health care providers can encourage patients to discuss abuse by reassuring them that they can talk in confidence and by being supportive

and nonjudgmental. Over 30% of women would rely on God to help them, which suggests that local churches could have an important role in intervention programs.

This study has provided the basis for changes among health care providers and the Region 4 Council on Domestic Violence, but many important questions remain. To what extent do the barriers identified by the respondents also hold true for health care providers? Does universal home visiting of postpartum women in-

crease the knowledge and use of domestic violence advocacy services? Do rural health care providers identify screening for abuse and educating patients about advocacy services as quality assurance issues? In our view, building bridges between health care providers and domestic violence advocates will greatly improve the effectiveness of both groups. **MM**

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This study was approved by the Institutional Review Board of the University of Minnesota.

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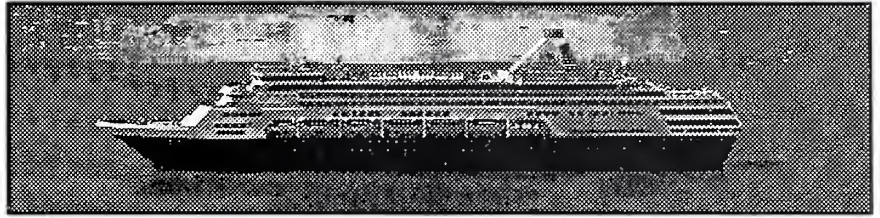
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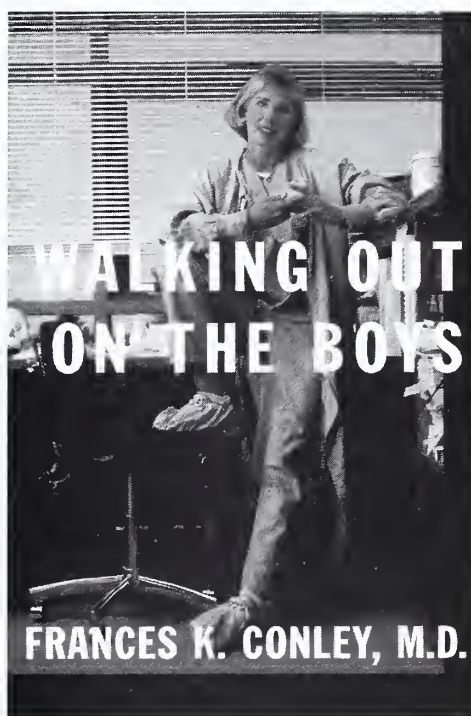
A Man's World

In "Walking Out on the Boys," a Stanford University neurosurgeon describes a pattern of gender bias and abusive treatment of women in the school's surgical medicine department.

Reviewed by Kathleen Sweetman, M.D.

Frances K. Conley's "Walking Out on the Boys" is a riveting and passionately written chronicle of her medical education, from her undergraduate years at Stanford University in the 1960s through her current position as acting chief of staff at Palo Alto Veterans Health Care System and professor of neurosurgery at Stanford University. On May 22, 1991, Conley resigned her position as tenured full professor, protesting the pervasive, long-standing gender discrimination she experienced at Stanford. Although she eventually returned to Stanford, Conley presents the world of surgical medicine there as an insular, patriarchal culture, where sexual harassment and gender bias are the norm—and she includes much supporting evidence. Yet, she asserts, the term "sexual harassment" falls far short of encompassing the damage done by the trivialization of women's contributions and concerns. Conley argues that sexual harassment, gender discrimination, and the belief that women are inferior to men have limited opportunities for women in medical careers. These abuses of power have affected care of women patients, and they continue to this day.

Although Conley's family encouraged her interest in medicine, she began her career at a time when most women were expected to marry and become homemakers. From the outset, she confronted obstacles based on gender. Professors at Stanford ignored women in the classroom and in



the OR. Slides of blow-up dolls and *Playboy* centerfolds were regularly inserted into lecture material to "wake up" the class. Women were directed toward "female" specialties, and they were considered fair game for "horny" residents. Next to nothing was taught about women's health. In the OR, male physicians made lewd remarks to female nurses and touched their breasts and crotches while scrubbing in for procedures. To survive and advance her career, Conley tried to fit into this world—to be "one of the boys." She laughed when her male co-residents played a game of drop kick in a restaurant, kicking plates at terrified waitresses and splat-

tering them with ceramic shards. She played along with jokes, most often at her own expense. And she took some pride in being tough enough to take it and sometimes dish it out.

Suspense builds as she recounts her gradual awakening to the damage wrought by the sexist environment at Stanford. Most distressing to her was leadership's failure to apprehend the serious consequences of sexual harassment and gender bias. As Conley's awareness developed, she began to confront the problem. When Gerry Silverberg, a fellow neurosurgeon who often bragged about his infidelities and had made repeated sexual overtures to many women, including Conley, was appointed neurosurgery department chair, Conley resigned in protest and went to the press with her story.

Conley's story received national attention. As a result of the widespread publicity, she met many women with similar stories, and she learned that the abuses within her own department were not unique or even unusual in the world of medicine. A recurrent theme was complete denial by the accused and allegations that the women reporting these offenses suffered from "hysteria." One especially poignant story involved a female Stanford medical student who wanted to do an ophthalmology residency. This young woman worked in the lab of a staff ophthalmologist who invited her to attend an opera with him, his wife, and their daughter. She accepted—and found herself

alone with a drunken professor. She escaped, but he blackballed her, and she could not get an ophthalmology residency anywhere.

As Conley notes, several surveys of medical students have documented widespread abuse. Fifty to 80 percent of women reported sexual ha-

arrassment and gender discrimination during medical training, and in one large study, over 95 percent of all students (both men and women) reported some type of abuse.

This points to a larger problem than the mistreatment of women; Conley vividly describes how medi-

cal education dehumanizes. We are trained to objectify our patients. Students and residents are regularly subjected to humiliation and putdowns. Severe sleep deprivation is the norm. Conley asks, in a male-dominated world, is it surprising that men working under extreme stress would target women?

Anyone involved in the medical professions should read this book, particularly physicians. In her afterword, Conley notes that two known harassers at Stanford recently received prestigious awards. In an effort to maintain the status quo, institutions ignore abhorrent behavior by privileged individuals. "Stanford Medical School remains one such old-fashioned man's world," she writes.

The changes needed to create a healthy environment in medicine and elsewhere are only beginning. This autobiography will resonate with most women in medicine and will discomfort many men. Yet it reminds us that, as difficult as it may be, we owe it to our children to create a respectful work environment where everyone's talents and needs are valued—not just those of white men. Much work remains, and health care professionals should take the lead in developing respectful work climates.

MM

Kathleen Sweetman is a pediatrician with Lakeview Clinic in Waconia, Minnesota.

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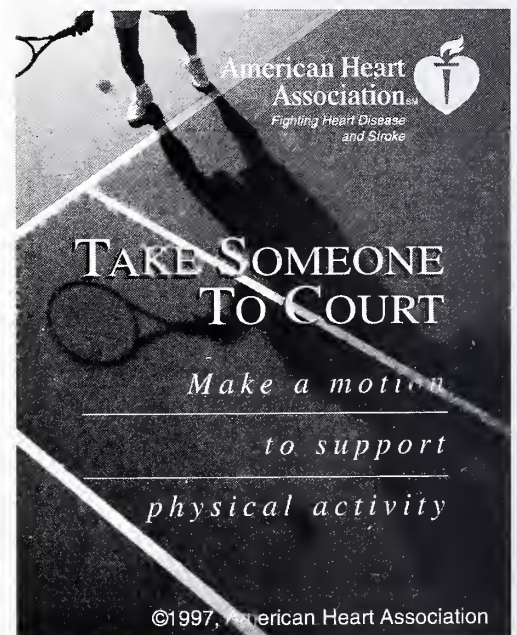
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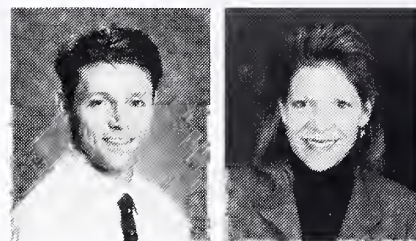
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Mark A. Bryer, M.D. Shelly R. Svoboda, M.D.

Doctor Bryer received his medical degree from the University of Witwatersrand in Johannesburg, South Africa. He has practiced as a family physician in Canada.

Doctor Bryer completed his medical residency in neurology at the University of Manitoba and served as Chief Resident. He recently completed a fellowship in neuromuscular disease at the University of Massachusetts Medical Center. His special clinical interests include electrodiagnostics and sleep disorders.

Doctor Bryer primarily practices out of the 910 Medical Place office in Minneapolis with additional office hours in Edina, Burnsville, Shakopee and Red Wing.

Doctor Svoboda completed her medical residency in neurology at the University of Kansas. She also completed a minifellowship in Epilepsy at Bowman Grey Medical College in North Carolina. Her special clinical interests are movement disorders, including Parkinson's Disease and essential tremor.

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FEBRUARY 1999

Feb. 5-6 **5th Annual Winter Conference: Woman's Health** Minnesota Academy of Family Physicians; Arrowwood Resort, Alexandria, MN. CONTACT: Ronda Steller, MAFP, 600 South Highway 169, Suite 1680, St. Louis Park, MN 55426; 612/542-0130 or 800/999-8198.

Feb. 6-13 **HealthEast 1999 Winter Medical Seminar** HealthEast; Cabo San Lucas, Mexico. CONTACT: Annette Anderson, 1700 University Avenue W, St. Paul, MN 55104; 651/232-5104.

Feb. 11-14 **Neurology in Clinical Practice** Mayo Foundation; Rancho Bernardo Inn, San Diego, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 15-17 **Gynecologic Surgery: Perspectives for the 21st Century** Mayo Foundation; Rancho Bernardo Inn, San Diego, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 22-26 **Selected Topics in Internal Medicine** Mayo Foundation; Hapuna Beach Prince Hotel, Mauna Kea Resort, Hapuna Beach, Big Island of Hawaii. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 22-26 **Second Mayo Clinic Endocrine Course** Mayo Foundation; The Ritz-Carlson Kapalua, Maui, Hawaii. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 23-26 **Whitefish '99: Issues in Rural Medicine** MeritCare Health System; Grouse Mountain Lodge, Whitefish, MT. CONTACT: Cheri Rodenburg, MeritCare Critical Care Services, 720 4th Street N, Fargo, ND 58122; 800/437-4010, ext. 6913.

Feb. 25-27 **Mayo Clinic State-of-the-Art Symposium: Arrhythmia Management** Mayo Foundation; Silverado Resort, Napa Valley, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200

First Street SW, Rochester, MN 55905; 800/323-2688.

MARCH 1999

March 6 **Annual VitreoRetinal Surgery Retina Update Conference 1999** Allina Health System and VitreoRetinal Surgery, P.A.; Radisson Hotel & Conference Center, Plymouth, MN. CONTACT: Dian Johnson, 570 Physicians Building, 6363 France Avenue South, Edina, MN 55435; 612/929-1131 or 800/635-1797.

March 8-12 **Tutorials in Diagnostic Radiology** Mayo Foundation; Keystone Resort, Keystone, CO. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

APRIL 1999

April 11-16 **Advanced Management Program for Healthcare Executives** The University of Minnesota, Carlson School of Management, Executive Development Center in partnership with Mayo Clinic; Mayo Clinic, Rochester, MN. CONTACT: Kay Kenitz, Mayo Clinic, International Education, 200 First Street SW, Rochester, MN 55905; 507/284-8399.

April 16 **15th Annual Heart Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention Center, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

April 16-17 **Osteoporosis: A Clinical Perspective** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

April 16-17 **Gastroenterology and Nutrition for the Primary Care Physician** Children's Hospitals and Clinics; Madden's Resort, Brainerd, MN. CONTACT: Betsy Julius, Medical Education, Children's Hospitals and Clinics, 2525 Chicago Avenue S, Minneapolis, MN 55404; 612/813-5884.

April 16-17 **Annual Meeting of the North Central Chapter Infectious Diseases Society of America** University of Minnesota; Hilton Hotel, Minneapolis/St. Paul Airport. CONTACT: Mary Majerus, Division of Transfusion Medicine, Hilton 210, Mayo Clinic, 200 First Street SW, Rochester, MN 55905; 507/284-3989.

April 22-23 **Spring Refresher** Minnesota Academy of Family Physicians; Hyatt Regency Hotel, Minneapolis, MN. CONTACT: Minnesota Academy of Family Physicians, 600 South Highway 169, Suite 1680, St. Louis Park, MN 55426; 612/542-0130 or 800/999-8198.

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MAY 1999

May 4-7 **Sixth International Surgical Pathology Symposium** Mayo Medical Laboratories; Hotel Inter-Continental, Prague, Czech Republic. CONTACT: Julie McAdams, 200 First Street SW, Rochester, MN 55905; 507/284-8599.

May 21 **Poisonous Plants Symposium** Hennepin County Medical Center; Pillsbury Auditorium, HCMC, Minneapolis, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

JUNE 1999

June 16-18 **63rd Annual Course, Advances in Breast, Endocrine, and Cancer Surgery** University of Minnesota Medical School, Department of Surgery; Willey Hall, University of Minnesota, Minneapolis, MN. CONTACT: Office of Continuing Medical Education, University of Minnesota, 107 Radisson Hotel Metrodome, 615 Washington Avenue SE, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636 or fax 612/626-7766.

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SEPTEMBER 1999

Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

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Mankato Clinic, Ltd., is seeking additional BC/BE physicians in the following specialties: occupational medicine, dermatology, gastroenterology, pulmonary medicine, radiology, and urgent care. The Mankato Clinic is a 70-physician multispecialty group practice in south-central Minnesota with a trade-area population of 250,000+. Guaranteed salary first year, incentive thereafter with full range of benefits and liberal time off. For more information, call Dr. Bryon C. McGregor, Medical Director, or Roger Greenwald, Executive Vice President, 507/625-1811, or write PO Box 8674, Mankato, MN 56002-8674. (*10/98-R)

Urgent Care Physicians: Independent group seeking part-time/full-time physicians to staff our urgent care facilities in Bloomington, Burnsville, Edina, and Lakeville. Contact the director of support services, 612/985-8931, or send inquiries to Quello Clinic Ltd., 7801 East Bush Lake Road, Suite 300, Bloomington, MN 55439. (*6/98-R)

Family Physicians: Independent, well-established suburban FP group seeking part/full-time FPs who like doing OB and full FP services. Clinics in Bloomington, Burnsville, Edina, Eden Prairie, Lakeville, and Savage. Excellent call schedule. Contact: Medical Director at 612/985-8922 or write Quello Clinic Ltd., 7801 East Bush Lake Road, Suite 300, Bloomington, MN 55439. (*7/98-R)

Olmsted Medical Center is seeking BC/BE physicians in family medicine, emergency medicine, pediatrics, internal medicine, and anesthesiology to join our 75-physician multispecialty group. Great opportunity for well-trained physicians to join a family-friendly group in a dynamic, progressive practice. In addition to its main office and hospital in Rochester, the Olmsted Medical Center system includes 11 branch office locations in southeastern Minnesota. Excellent salary and benefits including health benefits, malpractice, spending accounts, educational funds,

profit sharing, 401K/403B, and relocation assistance. Send CV to Lois Till-Tarara, Olmsted Medical Center, 1650 Fourth Street SE, Rochester, MN 55904; 507/287-2430, or fax 507/285-8973. (*12/98-R)

Clinic Space Available for Subleasing: New, beautifully finished medical space in Phase 2 of the WestHealth Medical Building. Building amenities include free parking, on-site laboratory, and pharmacy. Clinic space includes six examination rooms and on-site x-ray. Ideal for dermatology, allergy, general surgery, or plastic surgery. For more information, please call: 612/383-0770. 4-3/99

Internal Medicine—Western Suburban Minneapolis: Full-time opportunity for BC/BE general internist at Wayzata Internal Medicine. Join seven BC internists practicing at Wayzata and Shorewood/Excelsior Primary Physician Network clinics. For immediate consideration, send CV and letter of inquiry to Ms. Fisher, Primary Physician Network-7N, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416; 612/993-2819. For more information, call Chris Johnson, M.D., 612/993-6654, or Missy Fisher, 612/993-6025. 3-4/99

Urgent Care: Part-time family practice physicians needed. Northwest suburbs of Minneapolis. Facility open evenings, weekends, and holidays. Competitive salary. Call Tom Evans, M.D., Medical Director, 612/420-7048 or 612/420-5279. 6-3/99

Falls Medical Search Seeks Physicians for practice opportunities locally and nationally. To explore new practice options confidentially, send your CV or call Pat Falls, Falls Medical Search, 34 Forest Dale Road, Minneapolis, MN 55410; 612/922-0207 or 800/383-8916. (*5/92-R)

Vacation Rental: Lake Minnewaska/Glenwood. Weekend getaways/holiday packages. Includes wine, dessert, and seasonal gifts. Five BDR/2BA. Snowmobile, ski, fish, antiques. \$300/wkd. 425/222-7912. 2-2/99

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itive compensation program, excellent fringe benefit package, and opportunity to be a partner in a physician-owned organization. Send curriculum vitae to Daryl Mathews, St. Cloud Medical Group, 1301 W. St. Germain Street, St. Cloud, MN 56301; or call 320/251-8181; fax 320/251-6942. 5-3/99

Fergus Falls Medical Group, P.A.: The Fergus Falls Medical Group is expanding its 35-physician multispecialty clinic and is seeking physicians in the following specialties: ENT, family practice, general surgery, dermatology, orthopedics, psychiatry, and internal medicine. Excellent salary/benefits package includes guaranteed salary the first year with full partnership after one year. For confidential information on this opportunity, contact David T. Bjork, M.D., or Jim Wilkus, Administrator, 615 South Mill Street, Fergus Falls, MN 56537, 800/247-1066. EEO/AA. 3-3/99

Family Practice—Western Suburban Minneapolis: Full- or part-time opportunity for BC/BE family physicians in Golden Valley, Long Lake, Wayzata, or Shorewood/Excelsior. Join 30 primary care physicians practicing at eight Primary Physician Network clinics. For immediate consideration, send CV and letter of inquiry to Ms. Fisher, Primary Physician Network—7N, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416; fax 612/993-2819. For more information, call Chris Johnson, M.D., 612/993-6654, or Missy Fisher, 612/993-6025. 3-4/99

RED LAKE HOSPITAL located on the Indian Reservation in Red Lake, Minnesota.

This is a modern, well-equipped facility that serves the Red Lake Band of Chippewa Indians as well as the rural community. The emergency room sees approximately 14,000 annual visits; however, they are primarily clinic visits; only 750 annual visits are emergent. Trauma is transferred to Bemidji. We are seeking full and part time staff physicians for this emergency department team. We will provide relocation assistance if needed.

Red Lake is only a half-hour drive from Bemidji and only 45 minutes from Thief River Falls. Bemidji is a prospering city of 11,000 and offers many amenities for residents and visitors. Scheduling is flexible. 12 and 24 hour shifts are offered.

Annual full-time compensation is between \$125,000 and \$180,000.

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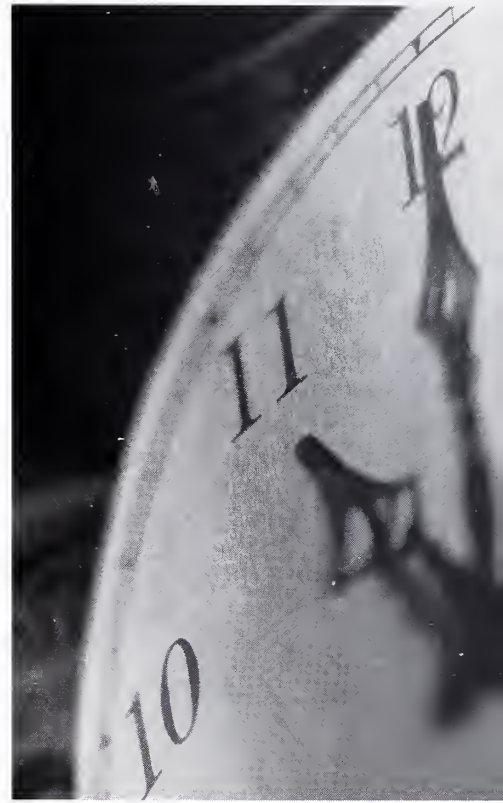
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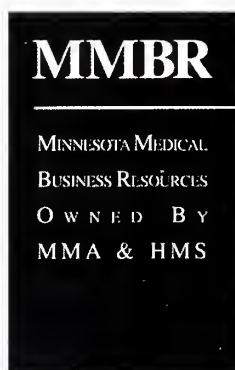
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all general office supplies and of 75 percent for frequently also arranged retail store *machines and software*, a take advantage of volume retail stores, and additional

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MDsearch assists medical groups and hospitals in their recruiting efforts. For confidential information on opportunities in the Upper Midwest, send CV and/or call collect Mary Jo Cordes, MDsearch, PO Box 21507, St. Paul, MN 55121; 612/454-7291. Fax: 612/454-7277. (2/93-R)

Research Opportunities: Sound Clinical Research is seeking local physicians to conduct clinical research. Great opportunity to increase revenue, gain recognition, and provide new treatment options for patients at no cost. Contact Nancy Cameron at 612/322-5477. 2-2/99

BC/BE Internist: The Fergus Falls Medical Group, P.A., is recruiting a seventh BC/BE general internist to join its 35-physician multispecialty group. Additional training with either echocardiography or nephrology/dialysis management would be helpful. Outstanding opportunity for well-trained individual interested in balancing personal values and professional endeavors. Excellent salary/benefits package includes guaranteed salary the first year with full partnership after one year. For confidential information on this opportunity, contact David T. Bjork, M.D., Bruce E. Money, M.D., or Jim Wilkus, Administrator, 615 South Mill Street, Fergus Falls, MN 56537, 218/739-2221 or 800/247-1066. EEO/AA. 3-3/99

FAMILY PRACTITIONERS

Gundersen Clinic, Ltd., is seeking BC/BE Family Practitioners for a variety of opportunities located in southwestern Wisconsin, northeastern Iowa and southeastern Minnesota to be part of Gundersen's regional rural network, a system staffed primarily with Family Physicians. Gundersen Clinic's regional rural network is supported by both on-site and immediate phone consultative services (Medlink) and from the 300 plus multi-specialty physician group in La Crosse, Wisconsin.

Gundersen Clinic offers competitive salaries and excellent fringe benefits.

If you are looking for a practice that has all the positives of rural life, coupled with the strengths and support of a large multi-specialty teaching institution, please send letter of application and Curriculum Vitae to Frank Perez-Guerra, Manager, Recruitment, Retention and Resource Planning, Gundersen Clinic, Ltd., 1836 South Avenue, La Crosse, Wisconsin 54601; or call 1-800-362-9567, extension 6325.

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Please send CV or contact
Elizabeth A. Thissen
at 1-800-747-4770 for additional information.

Austin Medical Center

Mayo Health System

1000 First Drive N.W.
Austin, MN 55912
1-800-747-4770 or
507-434-1474
Fax: 507-434-1477

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Children's Hospitals and Clinics, one of the premier health care providers in Minnesota, is seeking a professional to promote concepts of strong administrative leadership and medical team work.

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Seeking two full-time BE/BC primary care physicians interested in working in a multidisciplinary setting managing patients with chronic pain. The team consists of an anesthesiologist, psychologist, social worker and nurse practitioners. Our center offers a unique blend of case management, interventional procedures, and psychological and complementary therapies. This is a challenging opportunity to work with a successful team in an outpatient setting with consultative services provided to the hospital.

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Allina Health System

Debbie Modder

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	99 Toyota Camry LE, 4dr, AT	\$20,218	\$18,652	\$340	\$277	\$248	\$229
	99 Subaru Legacy Outback Wagon	\$23,790	\$22,400	\$396	\$345	\$311	\$282
SUVs	99 Ford Explorer XLT, 4dr, 4WD	28,335	\$25,640	\$472	\$419	\$368	\$332
	99 GMC Yukon SLE, 4WD, 4dr	\$33,806	\$30,557	\$525	\$435	\$385	\$355
	99 Chev Tahoe LS, 4WD, 4dr	\$33,187	\$30,016	\$535	\$430	\$379	\$349
	99 Chev Suburban LS, 4WD, 1/2 ton	\$36,548	\$32,849	\$553	\$467	\$416	\$393
	99 Ford Expedition XLT, 4WD, 4dr	\$34,120	\$30,734	\$524	\$427	\$386	\$365
Pickups	99 Chev, 1/2 ton Extcab, LS, 4WD	28,230	\$25,532	\$432	\$358	\$320	\$300
	99 Dodge 1/2 ton Quadcab, SLT, 4WD	\$26,530	\$23,734	\$438	\$357	\$309	\$285
	99 Ford 1/2 ton Supercab, XLT, 4WD	\$27,555	\$24,128	\$444	\$356	\$306	\$287

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* Sale price before tax, license, and license fees.

** All lease payments listed above are monthly lease payments before tax on factory ordered leases. These lease payments are based on a \$0.00 cap reduction and 15,000 miles/year. The only moneys needed to start the above leases are first payment, security deposit, and license for the first year.



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Violence among family members has reached staggering proportions. Every year more than 2 million cases of child abuse and neglect are reported, between 2 and 4 million women are battered by their spouses, and between 700,000 and 1.1 million of the elderly population are abused.

The American Medical Association has formed a *National Coalition of Physicians Against Family Violence*. Through the *Coalition* the American Medical Association hopes to involve you in activities that address issues of child abuse, sexual assault, domestic violence and elder abuse because you have the unique ability to identify the symptoms, first-hand. By joining the *National Coalition* you will be showing your concern about the effects of family violence and victimization, and will become a committed advocate within your community for the prevention of family violence.

Through the *Coalition* you will:

- be informed about local contacts and referrals
- become aware of local and regional resources
- be provided with information regarding model educational programs
- become aware of treatment guidelines and protocols.
- have access to newsletters, public education materials and other publications
- receive an official membership card and frameable poster alerting your patients of your interest in and concern for this problem.

The only **cost** to you **is your commitment** to help curb this problem. Simply complete the membership application form below and mail to the Department of Mental Health, American Medical Association, 515 N. State Street, Chicago, IL 60610.

Yes, include my name in the *Coalition's* membership

Name _____

Address _____

City/State/Zip _____ Telephone # _____

Specialty _____

Auxiliary Member ☐ Yes ☐ No Other _____

Area of interest within Family Violence: ☐ Child Abuse ☐ Sexual Assault ☐ Domestic Violence
☐ Elder Abuse ☐ Other

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FAMILY PRACTITIONERS WEST UNION, IOWA

Gundersen Clinic, Ltd., is seeking two BC/BE Family Practitioners to join our practice in the picturesque hills of northeast Iowa. West Union is part of Gundersen's regional rural network, a system staffed primarily with Family Physicians. The regional network is supported by both on-site and immediate phone consultative services (Medlink) and from the 300 plus multi-specialty physician group in La Crosse, Wisconsin.

The West Union practice includes six community clinics, with the hospital and main practice located in West Union. The practice currently includes five Physicians (including a General Surgeon) and four Physician Assistants. Obstetric practice is highly desirable. Call is 1:4. Gundersen Clinic offers competitive salaries and excellent fringe benefits.

If you are looking for a practice that has all the positives of rural life, coupled with the strengths and support of a large multi-specialty teaching institution, please send letter of application and Curriculum Vitae to Frank Perez-Guerra, Manager, Recruitment, Retention and Resource Planning, Gundersen Clinic, Ltd., 1836 South Avenue, La Crosse, Wisconsin 54601; or call 1-800-362-9567, extension 6325.

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Fax: 612-992-2927
e mail: recruit@allina.com
www.allina.com

How to Write Effortlessly

(And Why Not To)

James Kaufmann, Ph.D.

Want to write effortlessly? Here's how: Start by waiting until the last minute. The closer the deadline, the less time you'll have for writing. This automatically caps the amount of effort you'll be able to expend.

When you are finally compelled by circumstances to write, don't waste time planning. Just start saying things in the order in which it occurs to you to say them. It's all relevant, anyway.

Save time by not dwelling on word choices. Years of experience with the medical literature have trained you in the idiom—reproduce it as quickly as you can. Jargon and clichés are naturally occurring phenomena; take advantage of their convenience.

When the first draft is finished, make the second draft your final draft. Since the text is basically done, time spent revising should be minimal. Give this draft a once-over for spelling errors and typos. If you discover bigger problems, merely change a word or phrase in the general vicinity of the problem area. Resist the temptation to rewrite sentences or paragraphs; it's a bothersome, time-consuming activity with an uncertain payoff.

And don't worry about the reader. You're doing your part just to write the darn thing.

HOW TO REACH THE READER

Don't write effortlessly.

GOOD NEWS, BAD NEWS

BAD NEWS FIRST

Writing well is just plain hard. It simultaneously challenges your knowledge of your topic, your audience, and the English language.

Your topic: One of your jobs as a writer is to sort through the complexities of your topic and arrive at some understanding of it. Sometimes it can only be a tentative understanding. This can conflict with a desire to discover and express a certainty.

Your audience: Knowing the people you see daily isn't always easy; knowing an audience of unseen readers is tougher. How can you know for sure what to say? Saying this may be good; saying that may be bad. How can you tell?

The English language: Even great writers have trouble with their native tongue. In an often-told anecdote, Ernest Hemingway was asked to explain why he rewrote the ending of "A Farewell to Arms" 39 times. His reply: "Getting the words right."

THE GOOD NEWS

Writing well is a uniquely satisfying activity. For some, it's an intellectual challenge to marshal the appropriate material in the appropriate order, and to craft a piece that efficiently and effectively meets its obligations to the reader. For others, it's a romantic quest—a solitary struggle that pits an underdog against an empty

page (or an impatiently blinking cursor!).

"Creative" writing often refers to novels, poems, and such. But all writing is creative. All writing brings into being something that was not there before. All writers can take satisfaction in their creative powers.

Writers create more than mere words. Writing is a process of discovery. We use it to make and shape meanings. Words are comparable to numbers in their power—more powerful, some would say.

Writing can bring rewards, because texts are commodities we trade for something else of value: reputation, tenure, or even money. But the less obvious rewards are equally satisfying. The process requires quiet introspection, a luxury not often permitted by other activities in our lives. And in that quiet, you may discover that you are your best self when you write. For when we write, we not only compose our meanings, we also compose ourselves. **MM**

James Kaufmann is director of the Office of Communications, Hennepin Faculty Associates, in Minneapolis. © 1999 James Kaufmann

Minnesota Medicine

A JOURNAL OF CLINICAL AND HEALTH AFFAIRS



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Of Wonders
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MARCH 1999

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Eugenics' Long Shadow

"May Science and Common Sense join hands over the cradle of the unborn."

From an article supporting eugenics,
Southern Medical Journal, 1919



Francis Galton, father of the eugenics movement, believed in the power of measurement and numerical analysis. Karl Pearson, Galton's fellow eugenicist and founder of the Biometric Laboratory at London's University College, laid the foundation for modern statistics. Charles Davenport, a leader of the American eugenics move-

ment and director of the Eugenics Record Office (ERO), was a noted biologist who established the Cold Spring Harbor Laboratory. All three men had a dream of better humans. All three thought science and mathematics could help them improve humanity. But all three were guided by misguided ideas of their era that tarnished their movement. Their legacy provides lessons we can apply to today's genetic technology.

other "misfits," the involuntary sterilization of thousands of "undesirables," and attempts to limit the "foreign hoardes." The apex of eugenics' influence in the United States came in the 1927 Supreme Court ruling in *Buck v. Bell*, when Justice Oliver Wendell Holmes upheld the sterilization of a borderline retarded girl with the one-liner: "Three generations of imbeciles are enough." The original eugenics movement collapsed in the 1930s as its tenets were adopted, adapted, and perverted by the Nazis. Yet today the shadows of Galton et al. cloud the current debate on cloning and genetic engineering. Like late 19th-century science, medicine in 1999 is grappling with revolutionary ideas, such as altering DNA and producing genetic chimeras. Like the early eugenics movement, the current genetics revolution is led by well-educated, well-intentioned scientists. Like the eugenics theories, the next steps in genetics experimentation seem logical. And, like eugenics, the current and future thrust of genetics will be driven by the precepts and prejudices of contemporary culture. Galton, Pearson, and Davenport knew their math and science, but we can say from our perspective that they misunderstood social justice and fairness. Their model of the eugenically fit was white and middle class, mirroring the biases of their era.

In 1883, Francis Galton coined the term eugenics, meaning "well-born," as a "brief word to describe the science of improving the stock of man." Drawing on extensive family studies and data generated by the ERO, Galton and other early eugenicists concluded that gifts like talent and intelligence and defects like "degeneracy" and "feeble-mindedness" were inherited. Improving man meant encouraging the gifts and discouraging the defects.

The techniques of encouragement, so-called "positive eugenics," promoted marriage of the gifted to the gifted, who then could have lots of gifted offspring. Discouraging tactics, or "negative eugenics," included marriage restrictions, sexual segregation, involuntary sterilization, and immigration limitations. The United States of the early 20th century saw bans on the marriage of epileptics, the isolation of "imbeciles" and

While our ostensibly wiser perspective may help us avoid their missteps, history cautions against hubris. In his book "In the Name of Eugenics: Genetics and the Uses of Human Heredity," Daniel Kevles warns: "Early in this century, nascent genetic theory was invoked to bear a weighty load of human social claims. Biology still knows little about the role of genetics in behavior, but it might someday learn—or claim to have learned—more. In the event, the definition of 'defect' might become once again a hereditarian cloak for social prejudice."

One era's truths are the next era's prejudices. Future science and medicine will have powerful new tools to measure and analyze us humans. May science and common sense grant us the vision to see fact as fact and prejudice as prejudice.

—Charles R. Meyer, M.D., Editor-in-Chief

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When Cloning Meets Cancer

University of Minnesota cancer researcher Robert G. McKinnell, Ph.D., pioneered the use of cloning in basic cancer research.

BY DIANA KENNEY

Robert G. McKinnell's office at the University of Minnesota is crowded with portraits of his children, grandchildren, Dolly the cloned sheep, and his favorite species of frog: *Rana pipiens*, commonly called the northern leopard frog because of its spots. *R. pipiens* became celebrated in 1952, when Robert Briggs and Thomas J. King produced cloned tadpoles of the species—the first Metazoan animals to be cloned—at the Fox Chase Cancer Center in Philadelphia.

McKinnell, who is now Morse Alumni Distinguished Professor of Genetics and Cell Biology at the University of Minnesota, was thrilled to be invited to join King's lab as a postdoctoral associate in 1958. King put the young McKinnell to work investigating the Lucké renal carcinoma found in the northern leopard frog.

"My training was in embryology, and you may think it's a big step to go from that to cancer research," says McKinnell, who received his doctorate in developmental biology from the University of Minnesota. "But embryologists and cancer researchers both study the onset of change. In the former case, it's the onset of normal differentiation, while in the latter it's differentiation gone awry. The parallels in differentiation are strong."

In Briggs and King's 1952 cloning experiments with *R. pipiens*, the nuclei of early embryonic cells were transplanted into enucleated eggs. "Since cloning blastula cells, which are mitotically active, had

resulted in tadpoles, we wondered what would happen if we cloned cancer cells. They are also dividing; they are mitotically active," McKinnell explains.

So McKinnell, in King's laboratory, transplanted Lucké renal carcinoma nuclei into enucleated *R. pipiens* eggs. "We wanted to see if a ball of cancer cells would form, which would suggest that there was some permanent change in the genome of those cells to produce only cancer. Incidentally, every textbook at that time said cancer was an irreversible process," McKinnell says. But, to the researchers' "utter amazement," early tadpoles developed. The malignant nucleus produced cell progeny that differentiated as nerve, muscle, gut, and other frog tissues.

That experiment attracted a lot of attention in the scientific community and inspired McKinnell to focus his research career on the cancer genome. Very soon, he and others realized that the ability of cancer cells to be reprogrammed, as the cloning experiment had shown, could lead to a nontoxic cancer therapy. "If cancer cells can be manipulated by substances—from the egg cytoplasm or elsewhere—that make those nuclei act as if they are normal, then instead of consigning cancer patients with inoperable tumors to some place to die, we might try a cocktail of those differentiation control substances as treatment," he says.

When McKinnell began investigating this concept in 1958, it was considered "weirdo," he says wryly. But today, differentiation therapy is an emerging field of cancer research that has yielded promising

results in laboratory studies. Last year, McKinnell was awarded the Prince Hitachi Prize in Comparative Oncology by the Japanese Foundation for Cancer Research. "I was delighted at my ripe old age to receive a prize for my lifetime's work," says McKinnell, who is 72.



PHOTOGRAPH BY JOHN NOLTNER

McKinnell also feels vindicated by recent research associating a herpesvirus with some cancers. When he first began working in King's lab in the late 1950s, cancer was generally thought to be a spontaneous or genetic process that was not caused by external agents. The Lucké renal carcinoma was considered an "oddball" tumor because it appeared to be caused by a virus. "A professor at Yale, I remember, advised me not to work on the Lucké carcinoma because he said it wasn't a real tumor," McKinnell recalls. "But we were able to positively identify the Lucké tumor virus as a herpesvirus, and last year I completed a study of its genomic structure with the Medical Research Council Virology Unit at the University of Glasgow. It turns out herpesviruses are not so oddball after all, because they have now been implicated in several cancers, including Kaposi's sarcoma and Burkitt's lymphoma."

McKinnell's use of cloning as a fundamental research tool is one of the most distinguishing aspects of his career. Several of his investigations, including studies of metastasis and immunological rejection, have depended on the isogenicity of frogs he cloned for use as experimental animals. McKinnell has authored three books on cloning: a technical manual ("Cloning: Nuclear Transplantation in Amphibia," 1978) and two layperson's reviews ("Cloning: A Biologist Reports," 1979, and "Cloning of Frogs, Mice and Other Animals," 1985).

But McKinnell, like all the other early cloners, was repeatedly stumped by one problem: embryonic cells could be cloned to produce adult animals in several species, but all attempts to clone the differentiated cells of an adult animal failed. In 1986, McKinnell participated in an experiment that

came close to overcoming this barrier. Frog erythrocytes that McKinnell genetically tagged for the experiments were cloned by Marie A. Di Berardino and her associates at MCP Hahnemann University in Philadelphia, and feeding larvae developed. These were the most advanced animals to be cloned from a fully differentiated adult nucleus before the birth of Dolly, who was cloned from an adult sheep mammary gland cell in 1997.

Although McKinnell had not precluded the idea that cloning from an adult cell could work, Dolly came as a welcome surprise. "The tumor cells I had cloned were adult, but we got incomplete development. Marie Di Berardino's work with erythrocytes didn't get a frog either. And we were good! Nobody could do it. Then out of the clear blue sky, there was Dolly!" he says with a laugh.

McKinnell has known Ian Wilmut, the Scottish scientist who cloned Dolly, for 20 years and is very enthusiastic about his work. ("If Ian were the kind of guy who would like a pat on the back, I would gladly give him a pat on the back!" McKinnell says.) Wilmut's research group viewed Dolly as the first step in making a transgenic clone—an animal that contains a human gene—which McKinnell views as an eminently appropriate application of cloning. In a transgenic clone, the human gene for a medically valuable substance, such as a clotting factor, can be linked to a gene

that controls lactation so the substance is produced in the cloned animal's milk. Alternatively, human disease genes could be linked to animal cell nuclei and cloned to create disease models for medical research.

While the potentialities of animal cloning excite McKinnell, he is definitely cool toward the idea of human cloning. Even the prospect of cloning human embryos to assist infertile couples, which someone is bound to attempt fairly soon, does not appeal to him. "I think the medical community has an enormous responsibility to respond to the medical problems of the six billion people who already exist," McKinnell says. "To divert funds from research that would help existing populations toward developing a procedure to clone people at the laboratory bench seems very imprudent and unwise to me."

Two years ago, McKinnell decided to pull the plug on his research funding. "There are so many young scientists out there with new ideas, and I want to give them a chance," McKinnell says. He resisted when his funding agency tried to convince him to renew. But just as McKinnell's lab was closing down, Dolly was born, a breakthrough that re-inspired the cloning pioneer. "I turned off my funding at the worst time!" McKinnell exclaims. Now, he says, there is

one final experiment he wants to do, but he is keeping mum about it until he can determine the feasibility of reactivating his lab.

In the meantime, McKinnell keeps amply busy with teaching and writing. He recently co-authored an undergraduate textbook, "The Biological Basis of Cancer" (Cambridge University Press, 1998), which he uses in his "Biology of Cancer" course at the University of Minnesota. He is past president of the International Society of Differentiation Inc., and maintains the society's headquarters in his office. And even if his final "dream" experiment is never realized, McKinnell is gratified to see other researchers building on his studies.

"It has been fabulous to see cloning, which originally was a purely experimental procedure with no relevance to anything except embryology, move into cancer research, then into mammalian biology, and now possibly into applications to produce drugs cheaply," McKinnell says. "To see the evolution of cloning during my career has been extremely fulfilling." ■■■

Diana Kenney, a writer and editor who lives in Minneapolis, is the former editor of Minnesota Physician.

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Curiosity

The urge to discover enriches the patient, the physician, and the art and science of medicine.

By Faith T. Fitzgerald, M.D.

About 15 years ago, when I was dean of students at the University of California–Davis School of Medicine, yet another of the periodic paroxysms of “holism” in medicine occurred. Several importunate politicians called to tell me that, in their opinion—which presumably reflected that of their constituents—medical students, by selection or by their isolation by the medical curriculum, were insensitive, mechanistic, technocratic, inhumane brutes. The solution, these politicians insisted, was the intercalation of humanities courses into an already crowded curriculum.

I had several concerns about this. The first was that the addition of required courses in literature, drama, sociology, music, and art might actually limit

students’ opportunities to read, go to the theater, be with friends and family, and attend a symphony or museum. Even if one argues that students would not have done these things anyway—possessed as they were by the intricacies of glucose metabolism—the addition of these courses would cut down on contemplative time, volunteerism in free clinics, hobbies, and sleep. Second, I wondered what evidence supported the idea that being well versed in the humanities made one more humane. I was encouraged in my skepticism by the knowledge that perhaps the most broadly educated of physicians at the beginning of this century practiced in Germany. Moreover, I could not understand why science—a most human pursuit, the exercise of which is one of

the defining characteristics of our species—should make students “inhumane.” I decided to do a “scientific” study of the effects of humanities courses on humaneness in medical students.

Several colleagues and I read more than 10 years’ worth of the subjective descriptions of performance of third- and fourth-year medical students on their clinical clerkships. We looked for adjectives suggesting humane behavior: caring, warm, concerned, good with patients and families. Each of these descriptors got “nice” points. Words like callous, abrupt, and arrogant got subtraction points. Then we compared “nice” points to the total number of humanities units taken in the student’s premedical career.

What a shock: We found a direct correlation. I still thought it did not make sense. These were adults, after all. Was fundamental character, which is usually well formed by adolescence, changed by a class? I did what confused scientists have done for centuries to non-conforming data: I reanalyzed them. This time I ran a correlation between “nice” points and premedical units taken in science. Surprise again! Another direct correlation. Those students who had taken the most units in science had the highest number of “nice” points. In fact, in this idiot-driven experiment, “niceness” correlated directly with the total number of course units taken, regardless of the category.

What did it all mean? I did not know, but I wondered: What is kindness, as perceived by patients? Perhaps it is curiosity: “How are you? Who are you? How can I help you? Tell me more. Isn’t that interesting?” And patients say, “He asked me a lot of questions,” or “She really seemed to care about what was going on with me.” Is curiosity the same, in some cases, as caring?

Curiosity is the urge to investigate, to discover. It can be seen in all small mammals—just watch a kitten explore a paper bag. Evidently, although curiosity can be dangerous (“What’s down this dark hole, I wonder? What does this bright pill taste like? What’s the funny-looking black animal with the white stripe down its back?”), it also has a redemptive adaptive function that exceeds the risks. Other-

wise, puppies and small children would be wiped out. Curiosity is how we learn about our world.

Dr. Erich Loewy, in an unpublished paper, points out that curiosity, this primal “wonderment” that stimulates exploration, engages both imagination (conceiving the alternative explanations of new phenomena) and intelligence (mapping out the best way to determine which explanation is most likely). Both imagination and intelligence are integral to humanities, science, and the synthesis of the two, which is clinical medicine. Rather than stating that the study of humanities makes one humane, I propose that humane people are curious and therefore choose to explore the humanities as well as the sciences.

An endowed lectureship at my medical school allows us to invite Nobel Prize-winning scientists to visit and lecture for several days. What impressed me most about my conversations with these luminaries was the extraordinarily broad range of their interests, their enthusiasm, and their thought patterns. One thinks science has a sequential and controlled pattern of logical ideas, firmly grounded in antecedent principles and constantly cleansed of intellectual debris by the abrasion of skepticism. Listening to Nobel laureates in medicine was revelatory. No linear thought here. They uninhibitedly threw forth multiple ideas in their observations; the connections were often in-

visible to me. As if the ideas were the small bright stones of a mosaic, forming many possible pictures, these scientists looked at them and rearranged them until they found a picture they liked. Dr. Baruch Blumberg, for example, explaining how he found the hepatitis B virus, told me stories of Australian aborigines, roof thatch, wombats, guitars, bedbugs, the Babylonian Talmud, and manned space flight. No doubt the disciplined thought of scientific proof came later.

The scientists seemed oblivious to intellectual constraints and unconcerned about being seen as naive or unknowledgeable. I suppose being a Nobel laureate means that one has little left to prove of one’s adequacies as a thinker, but I have no doubt that these thought patterns preceded and were the reason for these people’s Nobel Prize-winning



discoveries, not a consequence of the prize. Curiosity without constraint, no preconceived image to emulate, no need for the façade of competence, open inquiry into any area that stimulated their interest—these qualities seemed common to them all.

In fact, the best clinical diagnostic thinking is more like the forming of a mosaic than linear thinking: It requires the physician to constantly alter diagnoses as each new piece of data enters the picture. One conceives constantly of many possible diagnoses, narrows down, re-expands, and generates an ever-evolving flux of ideas; the more information gained from patients, the better. For example, a 30-year-old woman with shortness of breath and fever (maybe a virus: pneumonia, of course) for three months (tuberculosis, multiple pulmonary emboli, lupus, sarcoidosis) recently returned from India (malaria, hepatic abscess, weird tropical disease) where she was visiting her mother, who was dying of breast cancer (anxiety; metastases from breast, ovarian, or colonic cancer; maybe she visited a guru and got toxic herbal medications), and so on.

What does curiosity have to do with the humanistic practice of medicine? Couldn't it just convert patients into objects of analysis? I believe that it is curiosity that converts strangers (the objects of analysis) into people we can empathize with. To participate in the feelings and ideas of one's patients—to empathize—one must be curious enough to know the patients: their characters, cultures, spiritual and physical responses, hopes, past, and social surrounds. Truly curious people go beyond science into art, history, literature, and language as part of the practice of medicine. Both the science and the art of medicine are advanced by curiosity.

One problem for medical students and physicians is that they must already have two things before engaging in uninhibited curiosity: a sense of competence (without which one tries to cultivate the appearance of competence, which generally means having more answers than questions) and time to think. The former is threatened by modern medical education and the latter by modern medical practice.

Is curiosity suppressed in medical students and physicians? It is. I have discovered, in nonclinical



settings, that students who, on the wards, seem totally without curiosity or culture—dolts, in short—were, in their private worlds, avid poets, artists, musicians, and craftspersons of exquisite skill, vitally interested in a wide range of topics. They just did not think it wise to let anyone know because they had received a message from house staff, faculty, or peers that interest in anything other than purely biological medicine was inappropriate for a medical student.

Medical education itself suppresses the expression of curiosity, emphasizing examinable facts rather than more ineffable thought processes in order to provide reproducible experiences for students. It may even substitute virtual patients (case discussions, simulations, CD-ROMs, and syllabi) for real ones.

Patients languish on the wards wondering who their physicians are, while their physicians discuss abstract patients in small rooms or play diagnostic games on the computer. Acting as a preceptor to second-year students, I discovered to my dismay that they gave up a physical diagnosis session to study for the written examination in physical diagnosis. Does this make sense?

Efficiency, in which patients are seen as “work units,” also suppresses curiosity. One senior resident once presented a patient in morning report and, as part of the physical examination, mentioned a scar in the patient's groin. When I asked how the scar had been acquired, she said, “He told me he was bitten by a snake there.”

“How did that happen?” I asked.

“I don't know,” she said.

How could that be? How could one not ask? The imagination runs riot with the possibilities of how this man got bitten by a snake in the groin. But the resident was too busy (or not curious enough) to ask!

The sacrosanctity of print and the ancient human belief that what is written is more true than what is said suppress curiosity. A third-year student presenting a patient to me at the bedside told me that the patient had had “BKA [below-knee amputation] times two.” Standing there, I saw that the patient had legs. I asked the student, “Did you find legs on your physical examination?”

“Yes,” he said.

“How then did he have bilateral below-the-knee amputations?” The student was confounded. He could

CURIOSITY continued on page 49

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CLONING



ILLUSTRATION BY CYNTHIA VON BUHLER

Of Wonders Wild & New

The passionate debate rages on as scientists and ethicists ponder the potential benefits and dangers of cloning.

By Charles R. Meyer, M.D.

CLONING

The question is, which is to be master.

—Humpty Dumpty, "Through the Looking Glass"

Curiouser and curiouser!

—Alice, "Alice in Wonderland"

Such an unlikely face to upset the world. Plaintive, slightly whimsical, cuddly, Dolly seems so innocent to have fomented all this noise. Before the Roslin Institute's February 1997 announcement of the world's first cloned mammal, most people understood at least subliminally that genetic knowledge was advancing. The Human Genome Project and the discovery of various disease-associated genes occasionally floated to the surface of media attention. But this sheep sired without a sire instantly riveted public attention and mobilized battalions of ethicists to debate what it meant for humanity. President Clinton, with his impeccable public opinion antennae, sensed fear and declared a ban on federal funding of human cloning. Since then, the debate has known no calm. Why does this scientific breakthrough ignite such vituperation, fear, or just plain befuddlement? Ian Wilmut and his sheep have sparked scientific and ethical questions that challenge our assumptions and test our wisdom.

Birth of a Clone

Named for a country music singer notable for her mammary glands, Dolly started life as a mature mammary cell from a 6-year-old ewe. This cell was fused with an enucleated egg from another ewe in a technique called somatic cell nuclear transplantation (SCNT). SCNT had been accomplished first by Nobel Prize-winning embryologist Hans Spemann, who transferred the nucleus from a 16-cell salamander embryo to a cell with no nucleus and developed a mature salamander. Ian Wilmut at the Roslin Institute in Scotland solved the puzzle of converting mature nuclei back to embryonic nuclei. Two laboratory tricks held the key to Wilmut's breakthrough. First,

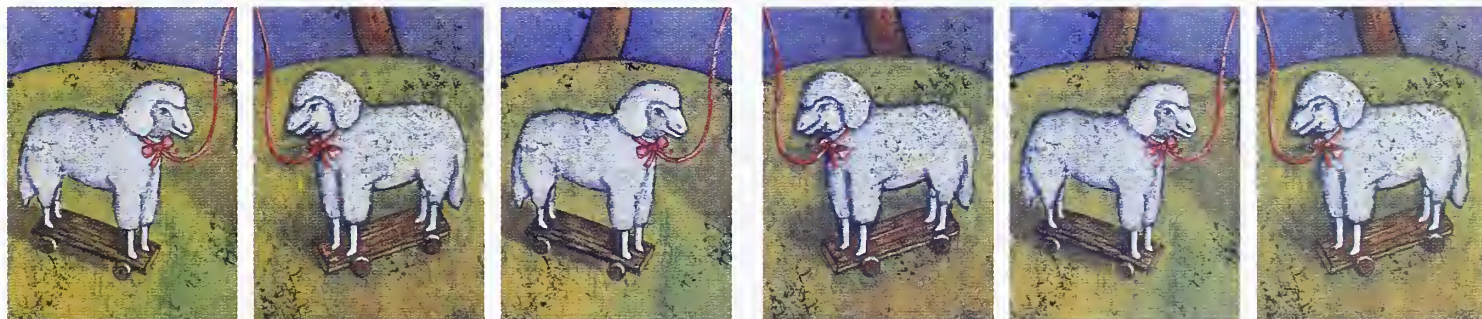
he found that eggs responded to fusion if the donor mammary cells were first placed in their "sleep" stage, called G0, by growing them in a nutrient-poor medium. Second, Wilmut zapped the fused cells with a small electrical current, which caused them to behave like a normal embryo—able to develop into every kind of tissue. Until then, biologists had assumed that once an adult cell had declared itself a mammary cell, or a tongue or a liver cell, it would never reconsider. But this little jolt of current was like a cellular back-to-the-future treatment, transporting the cell to an embryonic state and allowing it to grow to fetal maturity. Out of 277 fused, jolted cells, one live lamb resulted.

Infertility technology has crossed many scientific and paradigmatic bridges—in-vitro fertilization, intracytoplasmic sperm injection, surrogate motherhood—but the necessity of sperm and egg fusion for embryo development had held fast in mammals until Dolly.

Biologically, the main difference between SCNT and normal conception is that SCNT involves no mixing of genes. In normal human conception, a sperm with 23 chromosomes from the male combines with an egg with 23 chromosomes from the female. This fusion is assumed to be random, producing children disparate in appearance and personality, as any parent knows. Indeed, randomness is a critical point of contention between the pro- and anti-cloning factions in the ethical debate about what it means to be human.

Like Sheep, Like Man?

Two major questions remain about the science of cloning: Can SCNT work in humans, and will clones produced by SCNT be different from identical twins? Although Dolly is a mammal, any biology student knows that all mammals are not alike; mice diseases are not human diseases, and drugs that are good for cows are not necessarily good for people. Sheep seem to have a lazy streak, easily entering G0, and a slow starting nature,



giving genetic material time to undifferentiate. This raises the question of whether other mammals without these characteristics will respond to SCNT.

Since Wilmut's announcement, clones have been

produced in mice, cows, and rhesus monkeys, though not from adult donor cells. It is not known if humans present additional technical problems. But Princeton molecular biologist Lee Silver confidently predicts, "If nuclear transplantation works in every mammalian species in which it has been seriously tried, then nuclear transplantation will work with human cells."

Scientists also don't know how much the mitochondrial DNA and cytoplasmic environment in the egg will modify the clone's development, perhaps producing a clone unlike its cloner. The cloned embryo gets its cytoplasm from the maternal enucleated egg. Although the function of mitochondrial DNA is obscure, diseases like mitochondrial myopathy, which are passed from mother to son via mitochondrial DNA, suggest that it does control something. In an SCNT embryo, the cytoplasm and the nucleus come from different sources. In human identical twins, nucleus and cytoplasm divide together at the two-embryo stage. How this difference will affect the genetic development of a clone is not known. Almost certainly, though, cloned mammals will not be Xerox copies.

The Ethical Debate

Scientific breakthroughs that challenge social norms leave our collective heads spinning. The ethical debate about cloning began in 1966 with an unlikely sparring between a molecular biologist and a religion professor. In an article on "vegetative reproduction," Nobel Prize-winning geneticist Joshua Lederberg mused, "If a superior individual—and presumably the genotype—is identified, why not copy it directly, rather than suffer all the risks, including those of sex determination, involved in the disruptions of recombination?" Although Lederberg claimed that his article was more speculation than advocacy, Princeton religion professor Paul Ramsey roared back with a scathing critique. First in an article, "Should We Clone a Man?" and later in the book "The Fabricated Man," Ramsey warned that the research path necessary to perfect cloning inevitably would kill artificially created human life en route. He condemned cloning as contrary to Christian and human



understandings of parenthood. And he branded cloning as the embodiment of the Greek concept of hubris: "Men ought not to play God before they learn to be men, and after they learn to be men they will not play God."

The reverberations of the Lederberg-Ramsey dialogue had barely faded when another voice entered the fray. Joseph Fletcher, a Harvard University ethics professor and the father of "situation ethics," answered Ramsey point for point. He belittled Ramsey's "stop meddling attitude," writing, "If it were to dominate it would stifle or at least hobble not only biology but the chemistry on which biology is built." The new modes of reproduction would not eliminate the marriage bond, he argued, but might instead strengthen marriages. Fletcher did acknowledge the potential risks of cloning, but he blasted any fears as avoidance of progress: "This appeal to ignorance of the future as a reason for remaining ignorant in the present is an age-old weapon in the armory of reactionaries."

Since Lederberg, Ramsey, and Fletcher ignited the cloning debate, its fire has glowed, with each new advance in assisted reproduction sending up flares. Assisted reproductive technologies have already generated a *National Enquirer* reality of genius-stocked sperm banks, surviving spouses suing for custody of banked embryos, and babies from surrogate mothers going unclaimed by any of the surrogacy participants.

Seemingly fantastical conjecture about cloning the dead, nucleus banks, cloning the rich and famous, and designer genes and babies may not be irrelevant—yesterday's fantasy is often today's headline. One author, David Rorvik, indulged this fantasy in 1978 with the publication of "In His Image: The Cloning of a Man." Touted as nonfiction, "In His Image" described a self-educated, aging millionaire who produced an heir by cloning himself using nuclear transplantation, which at the time had been successful only in frogs. Rorvik was exposed as a fraud, but millions of readers thought science had taken a giant leap toward a brave, scary new world.

Against this backdrop of scientific uncertainty and fictional hyperbole, Dolly's birth set off the Mount St. Helen of all arguments. The sheep clone spurred speculation about human cloning, which was promptly la-



beled inhumane, unethical, and morally unacceptable by a broad array of commentators, including Ian Wilmut himself. The National Bioethics Advisory Commission (NBAC), chaired by Harold Shapiro, president of Princeton University, concluded, "At this time it is morally unacceptable for anyone in the public or private sector, whether in a research or clinical setting, to attempt to create a child using somatic cell nuclear transfer cloning."

Since then, scientists and ethicists have debated human cloning to a draw. Like all ethical issues, cloning is ambiguous. Finding an unbiased jury to judge the morality and feasibility of cloning is next to impossible, given the persistence with which movies and literature have replayed the Frankenstein/mad scientist theme.

From Frankenstein to Faust

Mary Shelley's *Frankenstein*, popularized by Boris Karloff, embodies the fear of amoral science running amok. For Frankenstein-phobes, human cloning would transform procreation into manufacture, the ultimate commodification of human life. In this vein, cloning critic Leon Kass, an ethicist at the University of Chicago, writes, "Enchanted and enslaved by the glamour of technology, we have lost our awe and wonder before the deep mysteries of nature and of life."

Richard Seed, an Illinois physicist who has announced his intention to start a human cloning clinic, may be the Frankenstein of the new millennium; he has dismissed his detractors as "small minds—with a rather small view of the world and of God." Among his most knowing critics is Louise Brown, the world's first "test-tube baby," who said, "[Seed] is somebody who is trying to make a quick buck off of self-advertising because of course there is no way you could clone a human being safely at this point."

Others turn to the Faust legend to support their arguments against cloning. Named for a 16th-century German doctor with magical powers and adapted by Marlowe, Goethe, and Thomas Mann, Faust represents the sinful pursuit of power and knowledge. Cloning, runs this argument, is the ultimate attempt by humans to control their destiny, to manipulate the roots of creation and tailor the future.

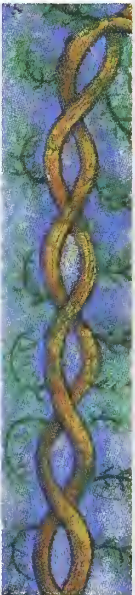
These critics warn that man lacks the foresight and insight to aspire to divine omnipotence. They offer as evidence the racism of the early 20th-century eugenics movement. Cloning advocates retort that cloning is just an extension of widely used in vitro fertilization procedures—and it doesn't have the cosmic implications of a pact with the devil. Knowledge can be refined and power can be controlled.

Like assisted reproduction techniques, cloning challenges the connection between sex and procreation. To its crit-


ics, cloning is the end product of an ethical creep of alternative lifestyles and deteriorating families and promises confusing new relationships resulting from single-parent and lesbian-couple reproduction. Such possibilities extend the "disconnect" between sex and conception, as ethicist Kass comments: "If sex has no intrinsic connection to generating babies, babies need have no necessary connection to sex."

Lee Silver suggests the potential ramifications of a clonal future in his book *Remaking Eden: Cloning and Beyond in a Brave New World*, an entire page of which is devoted to new types of parental designations, such as gene dad and social father.

Cloning adherents respond to these charges by arguing that cloning will give us new solutions to infertility problems without crossing any dangerous lines. Whether a child is loved and nurtured is more important than how he or she was created, they stress.



“Cloning, runs one argument, is the ultimate attempt by humans to control their destiny, to manipulate the roots of creation and tailor the future.”



Finally, the discussion comes back to man and God. The Old Testament saga of Adam tells of man's first step past the forbidden line. Critics in this camp, mainly religious thinkers, assert that cloning perverts what it means to be human and is therefore repugnant. How do we know when something is bad? Kass suggests that it's a visceral response, when something makes us shudder. For Kass and others, cloning is the tainted apple, and we should refuse it: "There may be some things that men should never do. The good things that men do can be made complete only by the things they refuse to do."

But even the Genesis story is debatable. Jewish thinkers who testified before the NBAC saw that Adam was given the power to enhance God's creation. Cloned humans would still be humans in God's image, so we should seize the opportunity to make "us" better.

Scientific Sirens

Without even whispering the words *God* or *ethics*, biologists and scientists have weighed in with their assessment of the risks and benefits of cloning. The Jeremiahs worry about the safety of the procedure for mother and child. Since the somatic nucleus that generates the cloned embryo has undergone differentiation in an adult, it has weathered radiation, chemicals, and other potential mutagens and thus could potentially pass on cancer or a chromosomal abnormality to the identical offspring. Some scientists also worry that the donated nucleus is "old" DNA. Was Dolly a newborn when she was born or was her DNA older? Will she and other clones age faster than normal "kids"? So far, she seems normal, but creating a race of old children is a creepy thought.

Other critics contend that cloning would be the pinnacle of cowboy research, a charge into the biological unknown at the risk of malformation and genetic disease for the offspring. The NBAC report notes, "When risks

are taken with an innovative therapy, the justification lies in the prospect of treating an illness in a patient, whereas, here no patient is at risk until the innovation is employed." The NBAC further cautioned that cloning would place parents in the untenable position of consenting to create a child, then perhaps finding out in mid- or late pregnancy that the fetus was flawed and having to decide either to abort or to deliver a diseased infant.

For the mother, the danger is mainly failure to produce a healthy infant. The Dolly experiment had a distressingly low rate of success. In an interview with

"Salon" magazine, Dolly's "father," Ian Wilmut, pointed out that three of five lambs in their first experiment died shortly after birth. He says, "The successes we have at present are of such low efficiency that it would really be quite appalling to think of doing that with people."

And what about the future gene pool? According to classic Darwinian evolu-

tion, random selection weeds out dangerous and dysfunctional genes. If humans choose to perpetuate one individual's genome for its good qualities—such as Michael Jordan for his athletic ability—will we also perpetuate less desirable, even offensive, traits that otherwise would be washed out over time?

Nonsense, say cloning advocates. Somatic cells are no more likely to mutate than are egg and sperm. And the telomeres—the chromosomal "hats" that are bellwethers of aging—look pretty normal in Dolly. The dangers to mother and baby will dwindle as the technology is refined; and actually, the odds aren't so great with normal reproduction, in which 40 percent of embryos fail to implant in the uterus. Since we "allow" alcoholic mothers to complete their high-risk pregnancies, why ban cloning because of undetermined risk? Lee Silver observes, "Unfettered evolution is always unpredictable and not necessarily upward bound." ➡



University of Texas professor John Robertson rebuts the NBAC's concerns about creating an ethical trap for parents by equating the pregnancy of a defective cloned child with that of a known Tay-Sachs or sickle-cell child. We don't consider it unethical to knowingly give birth to children who are not fully healthy, physically or psychologically, he says. University of Alabama ethicist Gregory Pence adds, "... no reasonable approach to life avoids all risks. Nothing in life is risk-free, including having children."

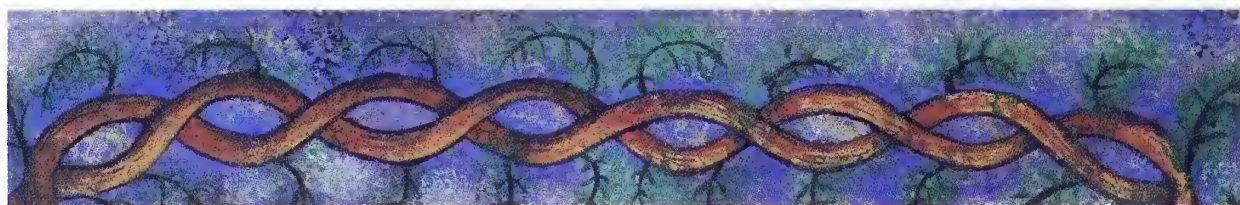
Besides, cloning defenders say, look at the potential benefits. Cloning might provide clues about the causes of miscarriage, the physiology of early embryological development, and the behavior of cancer cells. Potential therapeutic applications include generating human or-

gans for transplantation, growing nerve tissue for use in repairing damaged brains, and refining prenatal screening for genetic defects—a veritable medical miracle feast.

The current that sent a mammary nucleus back to genetic square one and produced Dolly has sparked a controversy that will surely build as we head into the 21st century. The rules have changed, as if the simple, symmetric beauty of the double helix has entered the confusing world of Alice's rabbit. As science masters more and more of life, we will need oracular wisdom to clarify our curious new world.

MM

Charles Meyer is editor-in-chief of Minnesota Medicine and an internist with Consultants-Internal Medicine in Minneapolis.



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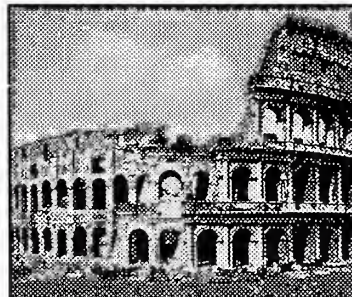
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Uniquely Twins

By Jack El-Hai



In the early 1950s, Lora Lee (Lori) Pegors and her identical twin sister, Linda Lou, attended a small country school near Truman, Minnesota. The school had four sets of twins among the 16 students in grades one through six. "There was a set of twins in every home in our square mile," recalls Lori. "We thought everyone had a set of twins. So we had quite a shock when we finally went to junior high in the city and saw that it wasn't true."

Today, they are Lori Stewart and Lynn Long, 53, and together they serve as secretary and treasurer of the International Twins Association. As volunteers, they gather new members for the organization, spread the word on news that is of interest to multiples, and help organize dinners and dances for twins and their spouses. Indeed, they are very interested in their twinness.

And researchers at the University of Minnesota are very interested in them. For more than 20 years, they've taken part in studies conducted by the university's Minnesota Center for Twin and Family Research and in the Minnesota Twin Registry, a survey of more than 8,000 twin pairs born in the state from 1935 to 1955 and 1961 to 1964. Using the data that twins like Lori and Lynn and their families have provided, researchers have gained insight into the genetic and environmental factors involved in such diverse human activities as mate selection, chemical abuse, the pursuit of happiness, and divorce.

The center's use of registry data to probe the genetic and environmental roots of divorce is one that especially intrigued Stewart, a Twin Cities resident, and her sister. The finding—shocking to many people—that some of us carry a genetic predisposition for unsuccessful marriages, did not at all surprise them. “But it came too late to help us,” laughs Stewart, who, along with her sister, has been divorced.

In the United States, fewer than 3 percent of all births produce either identical (monozygotic or MZ, resulting from a fertilized egg that has divided in two) or fraternal (dizygotic or DZ, resulting from two fertilized eggs) twins. Yet the characteristics of this relatively small population have contributed greatly to our understanding of the ways in which nature and nurture interact to shape our lives. Because MZ twins are genetically identical and both MZ and DZ twins have usually been reared in identical family environments, it is possible to compare the similarities and differences within pairs to determine when genes or environment play a dominating role. The results of these studies “have much broader implications than just understanding why twins are the way they are,” explains Matt McGew, Ph.D., a behavioral and quantitative geneticist and University of Minnesota twin researcher. “They’re about how each of us is.”

It would be fitting if the University of Minnesota, with campuses in the Twin Cities of St. Paul and Minneapolis, was unique in studying twins. But researchers at other institutions have studied twin pairs, including the University of Southern California, which has launched a California Twin Registry; the University of Louisville, whose twin study dates back to 1958 and focuses on child development; and MIT, which is using twins to examine language development. Large twin registries also exist in Virginia and Australia. The link between twin researchers worldwide is the International Society for Twin Studies, a consortium now 25 years old.

The U of M's Pioneering Contributions

The University of Minnesota is special among twin research centers for the large number of twin studies it has sponsored, the institution's long-standing interest in twins, and the publicity its studies have generated. Much of that uniqueness is due to the nature of the

Linda Lou & Lora Le

Janet & Janice

Vera & Veda

Helen & Hazel

Lavon & Yvone

Lori & Lisa

Betty Jean & Billie

Rick & Steve

Jean & Joan

Chrystine & Maxine

Nancy & Sara

Jim & John

Amy & Ashley

Shirley & Sandra

Donna & Delores

Donald & Doris

Rosemary & Ruth

Letty & Betty

Francis & Fredrick

Brigham & Samua

Lola & Lois

Joshua & Alexander

Gerald & Eugene

Barbara & Bertha

Coretta & Lorreta

Jewelaine & Geraldine

Lola & Lora

Gertrude & Hattie

Peter & Phil

Eloise & Louise

Karen & Sharon

Cindy & Lindy



Lora Lee, age 1.



Linda Lou, age 1.

*Terrible twos?
Linda Lou (left) and Lora Lee.*



university's Department of Psychology, which administers the Center for Twin and Family Research. In the late 1960s, the department began one of the nation's first training programs in behavioral genetics. "It's a tradition in the Psychology Department for people to be receptive to genetic influences on behavior," says McGew. "If you go back 20 years, genetics were not part of mainstream psychology. If anything, most psychologists were strongly opposed to genetic theorizing. That has something to do with [opposition to] the eugenics movement and Nazism. But the U of M was one of the few places with a faculty of psychologists who believed that genetic factors were important. They were scientists who thought that genetic factors must be part of the equation."

One of those scientists was David Lykken, Ph.D., a psychophysicologist and behavioral geneticist. Re-

cently retired, Lykken began working with twins in the early 1970s in studies measuring brain waves and reactions to stress. "It dawned on me," he recalls, "that almost any kind of research that you would think of doing with human subjects, psychological or medical, would be more interesting if you were doing it with twins. ... You can find out about the inheritability of the trait you're looking at, and there are a number of traits that are strongly genetic but don't run in families. In these cases, identical twins are strongly correlated, but fraternal twins [who are no more genetically similar than normal siblings] correlate close to zero."

Lykken was skeptical, though, about the research potential of a discovery that one of the Psychology Department's graduate students found in a newspaper. In 1979, grad student Margaret Keyes noticed an



*The bridesmaids,
Lori (left) and Lynn.*

*Lori (left) and Lynn
at the 1998 International
Twins Association
convention in San Diego.*



article about a set of identical twins in Ohio who had been separated a few weeks after birth and adopted by different families. At age 39, they had rediscovered each other. Tom Bouchard, a psychology professor, wanted to study this reared-apart pair. "I was dubious if it was worth all the expense and complexity to do a case study on one pair of twins, but he had better sense and energy," Lykken admits.

With this first study, the Minnesota Study of Twins Reared Apart (MISTRA) was born. As it grew to include more than 115 pairs of reared-apart twins and four sets of reared-apart triplets, MISTRA soon became the most famous twin study in the world. Readers of *The New Yorker* and *Smithsonian*, as well as viewers of NBC's "Tonight Show," learned of its finding that identical twins reared apart proved just as similar as those reared together.

Unfortunately for researchers, twins reared apart are as rare as diamonds. By the early 1980s, Lykken and his colleagues realized that much more research was needed. "We were doing all these tests and measures and would be turning up hypotheses that needed to be

Cody & Jordan
Colleen & Corrine
Roger & Robert
Glenda & Leonard
Kathy & Keith
Maxine & Melna
Ruth & Ruby
Elyse & Lindsey
Cassandra & Desiree
Donna & Doris
Lauren & Samuel
Edith & Edna
Luella & Rosella
Jan & Joyce
Terry & Torry
Carly & Julie
Ona & Oma
Randy & Robert
Juanita & Berneda
Elsbeth & Beverly
Ginny & Penny
Blaine & Boyd
Joseph & Vincent
Patricia & Letitia
Myrtle & Mildred
Joan & Jean
Linda & Rinda
Doug & Diane
Kathleen & Maureen
Lindsey & Lowell
Noah & Seth
Delores & Donna

verified and replicated in larger samples," he says. "So we set up the Minnesota Twin Registry." While MISTRA is now winding down, the registry and other twin studies at the university are thriving.

The Minnesota Twin Registry

Because there are no centralized records holding information on an individual's birth, health, and current address, assembling a twin registry is a monumental task. The first step for the researchers at the Minnesota Twin Registry was to track down a sizeable number of MZ and DZ twins born in the state. Birth and death records yielded information on who was born a twin during the years examined and who survived infancy, but finding the current addresses and names of twins, especially in the case of married women, took time. Relatives, old neighbors, and schoolmates pointed researchers in the right direction, and eventually the registry found addresses for some 16,000 individuals.

Over the years, twins in the registry have complet-

ed questionnaires designed to quantify everything from their habits and basic personality traits to their occupational and recreational interests as well as their opinions on such controversial topics as abortion, capital punishment, and arms control. Their parents, non-twin siblings, and spouses have also answered questionnaires.

While gathering this information, registry researchers have also developed a set of questions with a weighted response formula that can predict with 96 percent accuracy whether twins are identical or fraternal. Sometimes responding to these questions has cleared up the twins' own misunderstandings about their zygosity. "They're often mistaken because many physicians are confused about those things," Lykken says. "If [some physicians] see two placentas at birth, they'll assume the twins are fraternal. In fact, about one-third of identical twins split early enough to develop separate placentas."

One of Lykken's favorite areas of study based on registry research is whether mate selection is geneti-



Minnesota Twin Registry Research

The Minnesota Twin Registry, begun in the 1980s, has produced a wealth of data that is still used in research today. In its first 15 years the registry has produced information on the lives of twins and the genetic and environmental components of behavior, physical characteristics, health, and personality. Some of the earliest studies that drew from registry data showed that:

- The rate of fraternal twinning in Minnesota dropped by nearly 30 percent between the periods 1936-55 and 1971-83; meanwhile, the rate of identical twinning increased slightly, possibly due to advances in prenatal and obstetrical care;
- While both identical and fraternal twins were more likely to di-

vorce if they were the offspring of divorced parents, co-twins of divorced identical individuals were far more likely to also be divorced than were co-twins of divorced fraternal individuals, pointing to a genetically passed predisposition to divorce;

- Probably due to their similarities, identical twins keep in daily contact with one another significantly more than do fraternal twins, suggesting that similarity breeds intimacy, not vice versa;

- Twins span a broad cross-section of social class and education levels, making them more representative of the general population than most other poll groups and volunteers participating in psychological research.

cally patterned or environmentally determined. After questioning the spouses of MZ and DZ twins, researchers learned that the MZ spouses were no more alike than the DZ spouses. Startlingly, the MZ spouses were only slightly more alike than were people selected at random. "Then we sent a new questionnaire to twins and their spouses," Lykken says. "We asked the twins to think back to the time when their co-twin was in love with the person they married, and how the twin reacted to the spouse-to-be." With possible responses ranging from dislike to strong fondness, a familiar bell-shaped pattern emerged, centering on indifference. "But before we could draw conclusions, we wanted to see if there was a kind of jealousy thing going on—that the twins did not want competition from spouses. We asked spouses for their impressions of the spouse-to-be's twin from the time of the first romance. We got the same [bell-shaped] distribution." The researcher's conclusion: unlike many other forms of human behavior, mate selection is unpredictable and lacks a genetic basis.

Lykken also used registry data to investigate whether there is a genetic predisposition to happiness. He found one. "People sometimes get worried about biological determinants," he says. "But the genetics of behavior is not like the genetics of having five fingers or two eyes. You may have a genetic predisposition for divorce, but that doesn't mean you will inevitably get divorced. It's similar to the genetic risk for heart disease or cancer—the sensible thing is to take precautions if you're in a high-risk group. Genes affect the mind indirectly by influencing the experiences people have and the environments they seek out. There is always the chance for intervention and overruling one's genetic steersman."

The Aging Process

The Minnesota Twin Study of Adult Development was launched independently from the registry in 1986 to determine what causes individual differences in aging. "Most twin studies until then were undertaken with children or young and middle-aged adults," says McGew, the study's director. "There was virtually no information about the extent to which the behavioral similarities that one observes in twins at 20 years old really endure into their 60s and 70s. You could have reasonably postulated that as twins get older and their experience becomes more distinct from one another, they would become less similar over time. We wanted to find out to what extent that is the case."

The results were surprising. In measuring some characteristics, such as weight, McGew and his team found that older MZ twins were indeed less similar than younger ones. But in examining a variety of other traits—including intelligence, personality, memory abilities, agility, physical strength, and activity levels—researchers discovered that the older twins were just as similar, and sometimes more so, than their younger counterparts.

The Minnesota Twin/Family Study

Perhaps the University of Minnesota twin research that will have the most enduring impact on genetic and behavioral knowledge is the

Lisa & Linda

Arnold & Anthony

Phyllis & Wilma

Elaine & Romaine

Curt & Carl

Angelo & Gabriel

Melinda & Melissa

Jeanette & Janet

Rhoda & Ruby

Miranda & Michaela

Sharleen & Sharon

Karl & Frederick

Lloyd & Boyd

Paul & Tim

Elma & Edna

Susy & Sandy

Marilyn & Carolyn

E. Mae & E. Faye

Yashika & Zantika

John & Mark

Marguerite & Mary

Simmons & William

Annette & Jeannette

Donald & Ronald

Adelyn & Emelyn

Paulette & Pauline

Joshua & Shayne

Joanne & Jolene

Avis & Mavis

Jo Ann & Mary Ann

Alma & Alta

Karma & Karla

*Dorothy & Evyllen**Sheryl & Sue**Richard & Walter**Mary Jo & Patty Jo**Nick & Alex**Ray & Roy**Christopher & Nicholas**Loretta & Lorene**Cecille & Brian**Dwayne & Dwight**Jacqueline & Stephanie**Robert & Roger**Lola & Ola**Maxine & Marlene**Allison & Vivian**Ilene & Arlene**Violet & Virginia**Betty & Peggy**Richard & Ernest**Dollie & Ollie**Elizabeth & Emily**Corey & Kevin**Claudette & Jeannete**Brandi & Candi**Jeffrey & Joseph**Sparkle & Star**Lee & Lew**Bernice & Beatrice**Ijean & Irene**Leon & Leslie**Elizabeth & Emily**Darlene & Denise*

Minnesota Twin/Family Study (MTFS), the largest such undertaking ever attempted. Begun in 1989, MTFS enrolled 1,400 pairs of twins and their families from throughout the Upper Midwest. When they joined the study, the twins were either 11 or 17 years old. Researchers follow the twins as they pass from childhood to adolescence to adulthood, measuring mental, physical, and social changes. From this data, researchers hope to determine how personality evolves and why problems like substance abuse sometimes appear.

"We're trying to understand how genetic factors and adolescent experience predict adjustment in adulthood," says McGew, who heads the female-twin component of the study. "We're measuring multiple aspects of adjustment."

After an eight-hour intake session, study participants return to the university every three years for follow-up. "For the parents, it's an extraordinary sacrifice. They miss their work time," McGew observes. "But they are driven by what their kids want to do. ... They recognize their uniqueness and significance to this area of research. If we were to take the same protocol and apply it to other [twinless] families, it wouldn't work as well, and it would be hard to convince them to come."

It's still too early in the MTFS study to draw conclusions, but in time the data can be used to explore the roots of academic accomplishment, occupational success and achievement, mental health, religious conviction, and friendship and marital patterns. McGew is using the study data to investigate substance use disorders. "There's a lot of evidence that there is a heritable component," he says. "We'd like to understand how that component works and why not everyone with it develops problems. Our idea is that their experiences differ. We want to try to get a good idea of what their experiences were in adolescence and, given their inherited risk, who does and doesn't become affected."


With funding for at least five more years, MTFS will follow some of its subjects into adulthood, and perhaps it will shadow them for life. Some of the most interesting information might be uncovered when these twins have the chance to pass their traits and characteristics to their children.

To Be a Twin

Focusing on genetic and environmental influences on behavior and lives, the University of Minnesota's twin studies cannot cover every area of interest concerning twins. An examination of the apparent ability that some twins have to complete each other's sentences and thoughts, for instance, is going to have to take place elsewhere.

But in designing their studies, the university's twin researchers have not closed their eyes to the singular place that twins, especially identical twins, occupy in life. "It's a very important relationship," Lykken says. "I've gotten to where I envy twins. You're never alone, and there's always someone around who thinks as you do." MM

Jack El-Hai writes about science, history, and other topics for national and regional publications.



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Stem Cell Research

NOT YOUR ORDINARY MEDICAL BREAKTHROUGH

By Jeremy Peirce, M.S.

Human stem cell research promises revolutionary applications, such as the in vitro growth of human organs for transplantation.

Only a handful of years ago, the idea of cloning a mammal, much less a human being, was a possibility firmly and exclusively rooted in science fiction. Skin had been grown in the laboratory for some time, but growing the more complex internal organs seemed well beyond the horizon. Then, in early 1997, Ian Wilmut changed cloning from a feat many considered impossible into a workable laboratory procedure.

Before Wilmut's breakthrough, biologists largely believed that development was a one-way street. Once a cell had become, for instance, a mammary gland cell or a skin cell, it could not start over and develop into a neuron or a liver cell—or any other kind of cell. But let me back up a few steps.

BACK TO THE BEGINNING

Each of us started out as a single cell. This cell had the same genetic makeup that each of our cells has today (except sperm or ova), but in other ways it was quite different from our current cells. For one thing, this particular cell was pluripotent—it had the potential to generate any of the hundreds of types of cells that make up our bodies. These first pluripotent cells are also called embryonic stem cells. A stem cell regenerates itself when it divides. After division, one of the two daughters remains a stem cell, while the other may differentiate into a more specialized cell.

In fact, during the first few divisions, all of our embryonic cells were pluripotent stem cells. In identical twins, something interesting happens during these first

few days: the original embryo breaks apart. Since both parts of the embryo were made up of pluripotent cells, two genetically identical human beings result. If you don't have an identical twin, don't fret. We are less than a decade away from being able to change that.

In a developing embryo, all the pluripotent cells differentiate within the first week or so. In other words, they change into other types of cells specific to various organs or tissues. The first changes are very general. For example, one of the first differentiations determines which layer of body tissue a cell and all its progeny will occupy. Biologists had believed that cells fated to be part of the outer layer of body tissues, the ectoderm, were forever barred from becoming any of the cells found in the middle layer, the mesoderm. Later, the cells differentiate to form a particular tissue or organ. Again, scientists believed that once the genes related to these changes were activated or inactivated, they could not be "reset" to their original state.

Wilmut's contribution was a method for resetting the genes, essentially turning back the clock from the differentiated to the embryonic state. The genetic material from a differentiated cell nucleus—from a mammary gland cell, in this case—became pluripotent once again, capable of developing into a whole organism. Clearly, this advance packed an overwhelming scientific and ethical punch.

GROWING HUMAN EMBRYONIC STEM CELLS

Most types of human cells, with the exception of cancer

cells, don't grow very well outside the body once they are mature. Last November, however, two groups of scientists reported a significant advance—the ability to grow human embryonic stem cells indefinitely in the laboratory. This advance has its own impressive implications, and when combined with cloning technology, opens up an even broader array of possibilities.

The papers, published by John Gearhart, Ph.D., of the Johns Hopkins School of Medicine, and James Thomson, V.M.D., Ph.D., at the University of Wisconsin–Madison, detail separate methods for isolating and growing human embryonic stem cells. Both methods are controversial. In both cases, cells were retrieved from human embryos and grown in artificial culture. Gearhart's laboratory derived their cell line from the developing gonads of aborted fetuses, while Thomson's group used embryos left over from successful IVF efforts.

A REVOLUTION IN THE MAKING

The medical advances that may result from human stem cell research are likely to be a much bigger deal than cloning proper. Scientists are using words like “revolution” and making comparisons to the discovery of antibiotics. Harold Varmus, M.D., director of the National Institutes of Health (NIH), testified before Congress that the ban on embryo research should be lifted so that university-based scientists could use the cell lines in their research programs. Varmus, a careful scientist not given to hyperbole, stated, “It is not too unrealistic to say that this research has the potential to revolutionize the practice of medicine and improve the quality and length of life.”

Of course, such enthusiasm does not mean that the really interesting breakthroughs are coming any time soon. There are probably years of research and fine-tuning left before any but the simplest applications make it into the clinic. In fact, this latest scientific breakthrough seems to be following the traditional pattern—years of research followed by a brief period of public discussion, followed by more years of research to develop the discovery. Nonetheless, this really *is* an exciting development; I would not be surprised to see the most basic applications in the next few years.

The ability to culture human stem cells suggests a number of fascinating near-term possibilities. Most of these applications would probably involve using the pluripotent cells themselves or causing them to differentiate in particular ways to replace cells that are damaged

or have died. For instance, stem cells could help repair heart muscles following congestive heart failure, or they could be used to repopulate the nervous systems of people who have had a stroke or have Parkinson or Alzheimer disease. The latter use should be particularly achievable; fetal tissue is already used to treat Alzheimer patients and stem cells would likely be an excellent substitute.

The promise of pluripotent stem cells goes well beyond shoring up damaged tissues, however. One long-term possibility is the in vitro growth of whole organs for organ replacement. The ability to grow organs would reduce or eliminate what is perhaps the most difficult part of the transplant procedure—waiting for an organ to become available.

Of course, growing organs is likely to be very difficult. The trick would be to provide the stem cells with the right environment. Unfortunately, the right environment is likely to include a complex set of growth factors and other intercellular signals. I would guess that growing complex organs is at least 20 to 30 years in the future. Then again, guesses are dangerous in biotech these days—a few years ago I would have said the same thing about cloning! And the Human Genome Project is one of the few federally funded projects that is both under budget and ahead of schedule.

STEM CELLS AND CLONING

Whether you are replacing damaged cardiac tissue or growing a whole new heart, you will need to worry about the immune system. If

the wait for a new organ is the most difficult part of a transplant procedure, the worry that the newly transplanted organ will be rejected must surely rate a close second. Advances in immunosuppressive drugs have dramatically improved the odds for transplant patients, but it would be far preferable to be able to avoid using such drugs at all.

The powerful combination of cloning and embryonic stem cell technologies provides a potential answer. If a patient needed a transplant, physicians could take one of the patient's cells, generate an embryo using cloning techniques, and culture stem cells from that embryo. Since cloning is very likely to work for human cells and Thomson's technique for isolating stem cells uses early embryos, this technology is potentially achievable in the next few years. From there, all that would be needed is the technology to either grow the organ or reintroduce the stem cells into the patient. ➡



ILLUSTRATION BY HILARY MEYER

GENETIC ENGINEERING MADE EASY

The ability to culture embryonic stem cells will greatly improve the simplicity and efficiency of genetic engineering in human beings. Until now, it was necessary to rely on various inefficient methods to add new genetic material to cells. Often this meant either infecting a cell with a virus that could add itself to the genome or injecting the cell nucleus with DNA and hoping that it would be incorporated into the chromosome.

The first step in altering human stem cells is to design and construct the modifying DNA sequences. The DNA is then injected into the nucleus of a stem cell, and the cell is carefully examined to make sure the DNA construct has entered the patient's genome in the right place, in the right orientation, and in the right number of copies. If the modified cells are not quite what we expected, we can grow more and try again.

Not only is this process potentially valuable for modifying cells to reintroduce into an adult patient, but it could also prove useful for germline treatment of genetic disorders. Germline treatments modify sperm and ova as well as body cells and, thus, are passed on from generation to generation. This is both an advantage—you only have to make the modification once—and a disadvantage—the following generation doesn't have much say in the matter.

Germline changes are much easier to make when stem cells are available. It would be possible, for instance, to culture stem cells taken from an embryo generated by in vitro fertilization and to modify the stem cells by inserting or deleting genes of interest. The genetic material from the modified stem cells could then be used to create a new embryo using the techniques pioneered by Wilmut.

PROBLEMS, POTENTIALS, AND POSSIBLE SOLUTIONS

In all the discussion of human embryonic stem cells, I have not heard much about their significant potential for research and therapeutics. With such impressive potential, why does stem cell research have so many detractors? Depending on who you ask, the answer lies in either the potential or the origin of the cells.

Currently, the only source for pluripotent human stem cells is human embryos. Both approaches to culturing stem cells rely on unwanted human embryos or fertilized eggs to provide the initial cells. Of course, once the cultures are established, embryos are no longer needed. Opponents of fetal stem cell research argue that the original act of destroying an embryo morally taints any resulting research or therapy. An alternative source of stem cells may soon be available, however, that will prove more acceptable to these critics.

On January 22 this year, Angelo Vescovi and his colleagues published a paper in *Science* describing their use of neural stem cells from a mature mouse to generate various sorts of blood-related cells normally derived from bone marrow—completely different cell lineages. The neural stem cells were able to give rise to the blood cell lineages in addition to the neural cell types they

normally produce. If this result can be applied to mature human stem cells, the argument over the use of embryos may well become a thing of the past. Unfortunately, the issue of stem cell potential is a good deal more fuzzy.

Short of an absolute ban on fetal stem cell research, this work will likely remain a subject of intense fascination. Studies will proceed more quickly, however, if researchers are able to use federal funds, particularly from the National Institutes of Health. There is only one small problem—a congressional ban on research that uses human embryos. Of course, by using cultures of human stem cells that already exist in laboratories, researchers do not have to use human embryos.

The NIH recently decided that this loophole is large enough to justify funding the research. In a January 28 press release, the Department of Health and Human Services argued that pluripotent stem cells “are not an embryo as defined by statute.” Moreover, the department said, “because pluripotent stem cells do not have the capacity to develop into a human being, they cannot be considered human embryos consistent with the commonly accepted or scientific understanding of that term.”

These arguments are not universally accepted. It is true that cell cultures are not themselves embryos, but the second premise is more controversial. In a 1993 paper, Andras Nagy, Ph.D., and Janet Rossant, Ph.D., of Mount Sinai Hospital in Toronto described how they generated mice from embryonic stem cells. Making a viable mouse in this way is rather tricky; it requires the addition of cells that do not ultimately contribute to the embryo but are needed to encourage the created “embryo” to implant and develop. If these experiments can be applied to humans, the only remaining ethical question will be whether development of an embryo with external assistance constitutes the “capacity to develop into a human being.”

For that matter, a perfectly ordinary fertilized human egg in a laboratory dish is also incapable of developing into a baby without intervention. Both egg- and stem cell-derived embryos must be placed in a host mother to have the proper environment and nutrition to survive.

The NIH, aware of the many controversies surrounding these issues, is proceeding with care. Although the NIH plans to fund pluripotent human stem cell research, such funding is on hold until guidelines can be developed addressing the ethical implications of the research.

Human stem cells have a vast potential for helping to combat a wide variety of diseases. But the ability to culture human stem cells from embryos or even adult humans blurs the line between cells and embryos. The early embryo is often set apart from any other mass of cells based on its potential. If a similar mass of stem cells can also form a human being, albeit with somewhat more help, we must decide if potential development is sufficient reason for actual policy.

MM

Jeremy Peirce graduated from Amherst College in 1995 with a degree in biology. He is currently a Ph.D. candidate in molecular biology at Princeton University, where he works in the laboratory of Lee Silver, Ph.D., on alcohol preference in inbred strains of mice.

ANNOUNCEMENTS



Don't Assume Medicare Error is Fraud, MMA Warns

Be prepared to answer your Medicare patients' questions about their bills. The federal government and the American Association of Retired Persons held a training session on Medicare fraud and abuse February 24 in Burnsville to encourage beneficiaries to scrutinize all bills. The event was part of the federal government's nationwide effort to enlist Medicare beneficiaries in "the battle against Medicare fraud."

The MMA issued a statement urging Medicare beneficiaries not to assume that error constitutes fraud.

To obtain talking points to help you answer your patients' questions, visit News Briefs in the News and Publications section of the MMA home page: www.mnmed.org. If you have questions about the Medicare program, call Janet Silversmith, director of health economics and policy analysis at 612/378-1875 or 800/DIAL MMA (342-5662).

MMA Launches Organ Donation Program

In 1980, plastic surgeon James Gavisser, M.D., received a priceless gift from a young woman he'd never met: the kidney that saved his life.

Gavisser, who for five years had been battling renal failure and waiting for a kidney transplant, remembers reading a newspaper article about a woman who died in a house fire in Sioux City, Iowa. The article coincided with the arrival—from Sioux City—of Gavisser's long-awaited kidney, and though he doesn't know for sure, he suspects he owes 12 years of his life to that young woman and her tragedy-stricken family.

"I'm very grateful for the fact that I received an organ," Gavisser said. "They are in such short supply." That kidney served him well until 1992, when Gavisser had his second transplant. He hopes that an educational campaign by the MMA, along with some new state legislation aimed at promoting organ donation, will encourage more Minnesotans to make the simple but life-giving choice to become an organ donor.

The MMA is launching the "Live & Then Give" campaign to help educate physicians and patients about the ease of organ donation. The campaign will strive to dispel several myths about organ and

tissue donation, making it clear that:

- Organ and tissue donors do not receive less aggressive medical care than non-donors. Organ donation is not even considered until all possible efforts to save the patient's life have failed.

- Organ donation does not leave a patient disfigured or change the way he or she looks in a casket.

- Organ donation costs the donor's family nothing; all costs related to donation are paid by the recipient.

- All major religions in the United States support organ donation.

Perhaps the campaign's most important message will be that potential organ and tissue donors *must* discuss

their decision with family members. Physicians cannot act on a patient's wish to be a donor without consent from the

DONATION cont. on 35



Democrats Urge Provider Tax Repeal

The MMA's effort to repeal the sick tax got a big boost February 18 when several House Democrats voiced their strong support for H.F. 35. See story on page 35.

VIEWPOINT

Judith F. Shank, M.D.
MMA President



Compromise Counts as a Real Victory

When we're counting our wins and losses at the Legislature, it's important to consider political realities.

At the MMA Legislative Summit in February, legislative consultant Joe Gagen gave us some valuable insights into the political process. One of his key messages about state legislators was: "It's their game, and their rules." This can be hard to accept. We physicians are accustomed to being in charge of what happens in our practice. We base our decisions on logic and scientific evidence, then expect our ideas to prevail. This is not always the way it works at the Legislature. Decisions may be based on a variety of factors, including personal experiences, emotional appeals, constituents' requests, party loyalty, and a desire to compromise, as well as on the facts.

Although we can influence the outcomes—and we certainly do—we're not in control and often must compromise to get the best result.

Some of our most important victories fall into the "It Could Have Been a Lot Worse" category. The bill that changes the medical malpractice statute of limitations from

two years to four years from the date of harm is a prime example.

Early in the 1999 legislative session, the trial lawyers' bill to lengthen the statute to two years from discovery of harm with a six-year cap was gaining momentum and seemed headed for passage.

We argued that the current statute works. It strikes the right balance between allowing the plaintiffs their day in court and controlling health care costs. We said there will always be claims that fall outside the statute of limitations. We offered amendments to include other tort reforms.

But legislators heard emotional testimony from family members of patients who had allegedly died because of medical malpractice. They were influenced by the fact that many states have longer statutes of limitation than Minnesota, particularly those with a discovery rule. Our lobbyists kept hearing the same message: "Two years is too short." We didn't agree, but we couldn't ignore clear signals that we couldn't defeat the bill. With Rep. Steve Sviggum, the powerful House speaker as one of its chief authors, it was highly unlikely we

could have killed or amended the bill in the House. In the Senate, we had virtually no chance. We adjusted our strategy to the political realities.

Gagen gave an example of the pitfalls of refusing to compromise until it's too late. Ophthalmologists in another state were fighting a bill to expand optometrists' scope of practice. Their lobbyists advised compromise; they had counted votes and knew that complete success was impossible. The ophthalmologists refused; it was a public health issue and they wouldn't give an inch. After a devastating loss on the House floor, however, they quickly began scrambling to reach a compromise. Obviously it was too late to make the best deal possible. By ignoring the political realities, by not counting the votes, they lost their chance to obtain the best outcome under the circumstances.

The MMA did not let that happen with the medical malpractice bill. The compromise is not what we wanted, but it's a tremendous improvement over the original bill. We are right to count this as a legislative victory. ■

Democrats Urge Provider Tax Repeal

The Minnesota Medical Association's push to repeal the provider tax got a tremendous boost February 18 when several House Democrats announced their strong support for H.F. 35.

That bill, authored by Rep. Bill Haas, R-Champlin, would repeal the 1.5 percent provider tax effective July 1, and instead transfer a portion of the tobacco settlement money to the Health Care Access Fund as a funding source for MinnesotaCare. The proposal also would repeal the 1 percent premium tax on HMOs, CISNs, and Blue Cross Blue Shield.

Among the DFL lawmakers endorsing Haas's bill are House Minority Leader Tom Pugh, DFL-St. Paul; Rep. Thomas Huntley, DFL-Duluth; Rep. Lee Greenfield, DFL-Minneapolis; and Rep. Ann Rest, DFL-New Hope. They emphasized their approval of the fact that the bill protects MinnesotaCare, since tobacco settlement proceeds would provide ample funds for the program through 2008. After that, money from the state's general fund would be used to pay for MinnesotaCare.

"We support repealing the provider tax, but also want to ensure

continued stable funding for MinnesotaCare and the rural health and health care access programs the tax supports," Pugh said. "That's why we support [H.F. 35] and why we urge our Republican colleagues to pass it."

H.F. 35 passed the Health & Human Services Finance Committee February 10 (see the March issue of *The Physician Advocate*). The House Tax Committee heard testimony February 18 in favor of replacing the tax and laid it on the table for later inclusion in the omnibus tax bill. ■

DONATION *cont. from 33*

next-of-kin, even if the patient carries a signed donor card or has a donor sticker on his or her driver's license.

Currently, about 50 percent of the people in Minnesota who are eligible to donate organs or tissue end up doing so; every day 10 people in the United States die waiting for an organ or tissue transplant. Gavisser believes those figures would change if physicians gave more people the facts about organ donation.

"Many people think, gee, that would be a good thing to do—but I don't want it done prematurely. People have to feel confident that their doctors and families are going to [carry out this decision] in a responsible way," Gavisser said. "When the doctor says, 'This person is a potential donor,' how do they come to that decision? How do they reach the conclusion that the chance of recovery is zero? People have to have that information."

When a person and his or her family make the decision to become organ or tissue donors, the choice

often ends up being a valuable tool in working through grief. Norma Bradow of Fergus Falls lost her husband, Gary, to a stroke when he was just 57 years old. But the knowledge that his liver saved the life of Rep. Darlene Luther, DFL-Brooklyn Park, helped Bradow cope with her loss.

"Darlene and I now have a special bond between us," Bradow said. "During the process of grieving the loss of our loved one, [the liver donation] helped us find peace and meaning."

Gavisser said that is as compelling a reason to become an organ donor as "the fact that it's 'right.' We're going to feel like that life has, in a way, been carried on—and it truly has. That's really a good feeling."

MMA Backs Organ Donation Bills

The MMA is supporting several bills—all authored by Rep. Luther—aimed at making the choice of organ donation simpler than ever.

• H.F. 38 would ensure that once a person has requested an anatomical gift designation on his or her

driver's license or identification card, the designation would automatically be included on license/ID card renewals.

• H.F. 74 would allow a person who has signed a health care directive to authorize his or her health care agent to decide whether the person's tissue and/or eyes are donated upon his or her death.

• H.F. 127 appropriates \$2 million for public education initiatives promoting organ, eye, and tissue donation. The money would go to LifeSource, an organ procurement organization certified by the Health Care Financing Administration, for efforts to raise awareness about organ, tissue, and eye donation and to encourage donation.

"If it wasn't for Norma and Gary, I wouldn't be here today," Luther testified before the House Health and Human Services Finance Committee February 19. The panel held H.F. 127 over for consideration in the omnibus health and human services funding bill. ■

MMA Fights Intrusive Abortion Reporting Measures

The Minnesota Medical Association is fighting another intrusive abortion reporting proposal at the Capitol, and will introduce a bill to repeal the burdensome reporting requirements passed last year.

MMA director of health law Patricia Franklin testified February 16 before the House Health and Human Services Committee against a proposal to impose new abortion reporting requirements on physicians. The bill, H.F. 377, would require doctors to provide the state with additional information on abortions involving minors. Some of the information duplicates current reporting requirements, including the ages, "ethnic backgrounds," and home counties of minor girls receiving abortion services. The bill passed the HHS panel on a 13-6 vote, and moves next to the Civil Law Committee.

The measure also would require doctors to report the specific means used to inform the minor's parents under Minnesota's existing parental notification statute. If the case triggered a legal exception to the parental notification law, the report would have to detail that as well.

In cases where minors have obtained permission to bypass the parental notification law through a judicial proceeding, physicians would also be required to report a great deal more: how they informed the minor of this option, whether they gave the minor court forms or made court arrangements, and how soon after visiting the medical facility the minor went to court to obtain judicial authorization.

H.F. 377 also would require courts to report extensively on judicial bypass proceedings, informing the commissioner of health about the number of petitions received, the number of bypasses denied by

judges, and the reasons bypasses were granted.

The measure's sponsor, Rep. Kevin Goodno (R-Moorhead), says it is needed to "promote parental involvement." The bill is backed by Minnesota Citizens Concerned for Life (MCCL).

“
Nothing in this bill renders
confidential the identity of
the reporting physician.”

*Patricia Franklin,
MMA director of health law*

Emanuel Gaziano, M.D., an ob/gyn at Abbott Northwestern Hospital, joined Franklin in testifying against the bill. Both emphasized that the measure "does not require a debate about abortion"—a deeply divisive issue on which the MMA has no position. Rather, physicians oppose the bill because it's onerous, serves no discernible public health purpose, and could place doctors, patients, and judges at risk.

"Nothing in this bill renders confidential the identity of the reporting physician. Through a simple inquiry to the department, anyone could learn the identity of all physicians submitting these reports," Franklin said. Given the murders and attempted murders of several physicians who perform abortions—physicians whose identities are advertised on Web sites like the infamous Nuremberg page—that lack of confidentiality is "absolutely chilling," she said. The bill doesn't guarantee protection of minors' and judges' identities either, Franklin added.

Gaziano said the bill "raises serious concerns about disclosing pri-

vate patient information to the state. This mounting burden of reporting requirements further harms the doctor-patient relationship.

"I meet and speak with physicians at every [point] on the abortion spectrum," he said, and all are increasingly alarmed about the potential for such reporting requirements to "place a target on the backs of Minnesota physicians."

Although Goodno said the bill is not meant to disclose the identities of doctors, patients, or judges, several legislators said the author's intent isn't enough to protect anyone.

"We've heard about what the *intent* of the bill is or isn't," said Rep. Thomas Huntley, DFL-Duluth, "but we have to vote on this language as it reads right now." Huntley voted against the measure.

Under the proposed law, the commissioner of health would be required to issue an annual public report breaking down the data collected from physicians and court administrators.

Sen. David Knutson, R-Burnsville, is sponsoring the Senate companion bill. Many analysts predict, however, that the measure has a greater chance of passage in the House. MMA legislative staff also believe Gov. Jesse Ventura might be inclined to veto any bill that contained the reporting requirements.

MMA Drafting Bill to Repeal 1998 Abortion Reporting Law

The MMA also is working on language for a bill to undo the abortion reporting law passed by the 1998 Legislature. Repeal of that measure—which antiabortion lawmakers attached to the \$58 million Health and Human Services omnibus budget bill—was deemed a major priority for 1999 by the MMA House of Delegates. ■

NEWS DIGEST

*People and places
making medical news*



People & Places

People & Places

Michael Osterholm, Ph.D., Minnesota's longtime state epidemiologist, resigned March 2 to become chief executive of a new private company, **Infection Control Advisory Network**, in Minnetonka. The new firm will develop programs to help hospitals and clinics control infections and reduce overuse of antibiotics. Osterholm started working at the **Minnesota Department of Health** in 1975 and stayed for 24 years, earning two master's degrees and a doctorate along the way and becoming state epidemiologist in 1984. He became known nationally for proving the link between toxic shock syndrome and tampons in the late 1970s and for tracing a major salmonella outbreak in 1994 to tainted Schwan's ice cream. He has also raised alarm about potential public health hazards from foodborne diseases and the use of biological weapons.

Osterholm is taking two of his top associates with him: assistant state epidemiologist **Kristine Moore, M.D.**, and **Craig Hedberg, Ph.D.**, a supervisor in the acute diseases section. Both Osterholm and Hedberg will continue to serve as consultants to the health department.

Gov. Jesse Ventura has appointed new commissioners for the state departments of human services and

health. **Michael O'Keefe, M.S.**, was named commissioner of the **Department of Human Services**. He has served as executive vice president of the **McKnight Foundation** and worked for the U.S. Department of Health, Education, and Welfare during the Johnson, Nixon, and Carter administrations. **Jan Malcolm, B.S.**, is the new commissioner of the **Department of Health**. She was vice president for public

affairs at **Allina Health Systems**, senior vice president at **HealthPartners**, and a health policy expert for **PARTNERS National Health Plans of Dallas**. She has served on the **Minnesota Health Care Commission** and the **Minnesota Governor's Commission on Health Reform and Regulatory Reform**.

Minneapolis mayor Sharon Sayles Belton appointed **David Doth, M.P.A.**, as director of the **Minneapolis**



Socioeconomics

Twin Cities Employers Pay More for Health Care

Health care cost increases for Twin Cities employers outpaced the national average, according to a survey by the **William M. Mercer Inc.** consulting firm. For 1998, health benefit costs increased 6.1 percent at the 47 local companies surveyed, compared with national cost increases of 5.7 percent. The survey also found a significant rise in overall health care costs in 1998.

Blue Cross Ends Medicare Claims Processing

Blue Cross and Blue Shield of Minnesota is getting out of the Medicare claims-processing business. The company notified the federal government in January that it will end its participation as an intermediary for Medicare Part A. The move does not affect the HMO's Medicare supplement policies for consumers.

Blue Cross plans to expand Medicare supplement insurance as well as other forms of health insurance. Although the Medicare claims contract generated about \$7 million a year, it was a break-even proposition for the company, a spokesperson said.

olis Department of Health and Family Support. Doth served as human services commissioner under Gov. Arne Carlson. Previously he had been a deputy commissioner and an assistant commissioner. He has also been vice president of the Metropolitan HealthCare Council and the Minnesota Hospital and HealthCare Partnership.

William D. Payne, M.D., has been named chief of staff at Fairview-University Medical Center for 1999. He is a professor of surgery and director of the Liver Transplant Program and Vascular Surgery Services at the University of Minnesota. Payne also serves as president-elect of the United Network for Organ Sharing and is a member of the University of Minnesota Physicians group practice. Others elected to the executive committee of Fairview-University Medical Center include Daniel Z. Zydwicz, M.D., chief-of-staff-elect; Stephen W. Trenkner, M.D., secretary; and Loie A. Lenarz, M.D., member-at-large.

Carl Patow, M.D., M.P.H., has joined HealthPartners as executive director of its Institute for Medical Education. He will oversee operations for policy development and health professionals education. Previously Patow was the medical director for the Johns Hopkins' managed care health plans and associate professor in the department of otolaryngology. He serves as chairman of the Ear, Nose and Throat Devices Advisory Committee of the U.S. Food and Drug Administration and an associate professor at the Uniformed Services University of the Health Sciences.

Donald Duncan, M.D., received the 1998 Earl G. Young Physician of Excellence award from the Foundation HealthSystem Minnesota. Duncan, a nephrologist at Park Nicollet Clinic HealthSystem Minneso-

ta, was selected by his colleagues for his dedication, kindness, and compassion, his clinical excellence, his service to other physicians, and his community involvement during his 30 years with Park Nicollet Clinic. Duncan is also the medical director of the Artificial Kidney Center at Methodist Hospital, an associate professor at the University of Minnesota Medical School, and a fellow of the American College of Physicians.

Regions Hospital named three new members to its board of directors. Rep. Carlos Mariani is a four-term representative for District 65B in St. Paul. Delores Henderson, Ph.D., is principal of the J.J. Hill Montessori magnet school in St. Paul. Maykao Y. Yang, M.A., is project coordinator for the Wilder Foundation, working on violence prevention initiatives.

T. Harry Orr, Ph.D., professor of

laboratory medicine and pathology at the University of Minnesota, has been appointed chair of the National Institutes of Health's Mammalian Genetics Study Section, a group of 18 genetics experts. Orr will manage evaluations of grant proposals. He has written or co-written more than 90 scientific papers; his current research interests focus on degenerative diseases of the brain.

Harry Jacob, M.D., professor of medicine and laboratory medicine and pathology at the University of Minnesota, has been elected president of the American Society of Hematology. Jacob is editor-in-chief of the *Journal of Laboratory and Clinical Medicine* and has served as editor of *Blood* and other medical journals. He is principal investigator of a hematology research grant from the National Institutes of Health that has been funded for 30 years. ■



Research & Innovations

Double Mastectomy Lowers Cancer Rate in High-Risk Women, Study Finds

Healthy women who are at moderate to high risk of developing breast cancer can significantly reduce their chance of getting the disease if they have both breasts surgically removed, according to researchers at the Mayo Clinic in Rochester.

"We've seen a 90 percent or greater reduction in the risk of breast

cancer and ... deaths were reduced to a significant extent in these women," said Lynn Hartmann, M.D., an oncologist at the Mayo Cancer Center and principal investigator of the study, which was published in the Jan. 14 *New England Journal of Medicine*. While prophylactic mastectomy was shown to be highly effective in cutting cancer and death rates, the procedure is not 100 percent effective, because the disease may spread before the breasts are removed.

A woman is considered at high risk for breast cancer if she has several close relatives who developed breast cancer at an early age. At-risk women have three main alterna-

tives: close surveillance, taking tamoxifen, or undergoing prophylactic mastectomies. The new findings provide solid evidence of the procedure's benefits, which may make it easier for women to decide what to do. But women who are concerned about developing breast cancer should find out what their risks really are before considering prophylactic mastectomies, Hartmann said. Many women overestimate their risk.

In the study, researchers examined medical records and tissue samples from 639 women with a family history of breast cancer who had undergone prophylactic mastectomies at Mayo between 1960 and 1993. They used statistical models and other tools to compare estimated cancer and death rates with actual rates.

Carcinogens Linger Weeks after Smoking Cessation, 'U' Study Finds

Researchers at the University of Minnesota Cancer Center have found that tobacco-specific carcinogens remain in the body at significant levels six weeks after smoking cessation, and at low levels for up to 40 weeks. The study is significant, according to lead investigator Stephen Hecht, Ph.D., because it shows that carcinogens do eventually disappear from the body after smoking cessation, even if more slowly than expected.

Researchers analyzed subjects' urine samples for NNAL and NNAL-Gluc, substances that the body manufactures from a carcinogen in tobacco. After the subjects quit smoking, levels of the substances gradually declined, indicating that the body stores and slowly releases them. "The slow release of the metabolite NNAL indicates that there is a depot in the body where this carcinogen resides," Hecht said. "If

we find this depot, it may help us understand how the metabolite NNAL causes lung cancer in humans." The study appeared in the Feb. 1 *Cancer Research*.

Mayo Researchers Deem Lymphedema Drug Harmful

Coumarin, a drug used to reduce lymphedema in women who have undergone breast cancer treatment,



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does not work and can cause liver damage, researchers at the Mayo Clinic and elsewhere concluded. Charles Loprinzi, M.D., a professor of medical oncology at Mayo and lead author of the study, and his colleagues in the North Central Cancer Treatment Group, discovered that coumarin works no better than a placebo in reducing arm swelling following breast cancer surgery and radiation treatments.

The researchers enrolled 140 women with chronic lymphedema in the study, which was published in the Feb. 4 *New England Journal of Medicine*. Half of the women were given 200 milligrams of oral coumarin twice a day, and the others were given a placebo. Researchers found no differences between the

two groups. However, 6 percent of the women taking the drug showed signs of significant liver toxicity.

'U' Researchers Implicate Free Radicals in Alzheimer Disease

Researchers at the University of Minnesota found that toxic protein fragments called amyloid-beta appear to promote Alzheimer disease by damaging neurons and disrupting blood flow to brain tissue. When enough amyloid-beta accumulates in the brain, it forms the telltale plaque found in the brains of Alzheimer patients. Constantino Iadecola, M.D., a professor of neurology at the university and the lead author of a study that appeared in the February issue of *Nature Neuroscience*, used specially developed

mice to test whether the plaque build-up interfered with normal blood-flow patterns in the brain. The group discovered that amyloid-beta is not only toxic to neurons but also to blood vessels. The restricted blood flow starves neurons of needed nutrients and likely contributes to the disease process, Iadecola said.

The culprits in this process are free radicals, which are produced by the protein fragments. Free radicals paralyze the cells that line the blood vessels, "stunning" them and blocking their function. This finding provides more evidence that vitamin E and other antioxidants may slow progression of the disease, Iadecola said, but extremely high doses are necessary to have an impact on the free radicals in the brain. ■



Rates, Trends & Data

Minnesota Ranks Third in Residents with Health Insurance

Nearly 91 percent of Minnesota residents have health insurance, the third highest rate in the country, according to a study of 1997 data by the *American Journal of Public Health*. Minnesota trails Hawaii and Wisconsin, which rank at 92.5 percent and 92 percent respectively. Texas had the highest number of uninsured residents—4.8 million, or nearly a quarter of its population. Arizona had 1.1 million uninsured, about 25 percent of its population.

A report issued by the Urban Institute also noted that 21 percent of low-income Minnesota adults lacked health insurance, compared with 37 percent nationally.

Health Department Releases Vital Statistics Annual Report

The Minnesota Department of Health in February released the 1997 "Minnesota Health Statistics," an annual chronicle of Minnesota births, deaths, causes of death, and other vital statistics related to health. The report, used by researchers, planners, legislators, and public health professionals, notes that births in Minnesota increased 1.3 percent from 1996 to 1997; overall, however, the population barely changed.

On average, 101 Minnesotans died each day in 1997. The leading

cause of death was heart disease, followed by cancer, respiratory conditions, strokes, violent deaths, and diabetes. The number of homicides decreased by 24.6 percent from 1996 to 1997.

More Teens Smoking Cigarettes, Pot

A survey by the state education department of 134,000 Minnesota teens in grades six, nine, and 12 shows that students are smoking more cigarettes and marijuana than in years past. Growing numbers of 12th graders identified themselves as "heavy smokers," consuming at least half a pack per day, surpassing national averages. Although alcohol use has declined since 1992, it remains disturbingly high, despite efforts to warn youth of the dangers of substance use. State education officials urged more efforts in schools and communities to deter harmful behavior. ■

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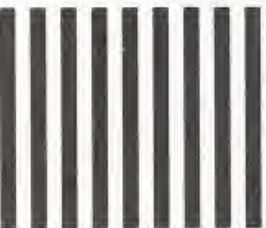
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	99 Dodge 1/2 ton Quadcab, SLT, 4WD	\$27,145	\$24,280	\$457	\$369	\$321	\$296
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Physicians' Perceptions of Risk Adjustment and Health Policy Formation in Minnesota

Joel V. Oberstar, B.A., M.S.II, James G. Boulger, Ph.D., Byron J. Crouse, M.D., and Thomas E. Huntley, Ph.D.

ABSTRACT

A questionnaire was used to assess Minnesota physicians' knowledge of and opinions about risk adjustment, a policy designed to modify payments to health providers based on the relative "sickness" level of the provider's patient population. Additionally, attitudes toward this policy were measured to examine physicians' perceptions of health policy formation in Minnesota. Although familiarity with this policy appears low, respondents support the concept of diagnosis-based risk adjustment. Physicians are divided on whether to further modify risk-adjusted rates with a conversion factor; their written comments suggest a mistrust of the policymaking process.

Physicians most often listed the Minnesota Medical Association as a primary source for health policy information, while few respondents reported any communication with state legislators in health policy matters. Respondents perceive an imbalance in the influence wielded by various entities in health policy formation. Only 5% believe individual physicians have significant influence in policymaking. Increased communication between physicians and their legislators may be one way for physicians to gain such influence.

Physician leaders have long recognized the importance of advocacy in the formation of state health policy.¹⁻³ In addition, both practicing physicians and state legislators have noted the need for physician participation in crafting workable health care policy.⁴⁻⁶ Recently, however, major changes in state health care legislation—like the HealthRight/MinnesotaCare bill—have created feelings of disenfranchisement among physicians who believe they have been ignored in the decision-making process.⁷⁻¹⁰ Communication between policymakers and constituents, critical to the democratic process, should provide physicians with the information to make sound decisions about health policy and a mechanism to convey their opinions to lawmakers. What factors contribute to disenchantment with the legislative process?

In the wake of the HealthRight/MinnesotaCare debate, Miles et al. discussed the issue of physician dissatisfaction with the policymaking process: "Many doctors complained that the Minnesota HealthRight Act was concocted in haste, in secret, in ignorance of the system, and by a process that had neither solicited nor debated physicians' views. An alternative possibility is that the physician community had not kept up with the policy debate."¹¹

To examine the parameters of communication between policymakers and physicians, we analyzed risk adjustment, a policy under development. Risk adjustment is a mechanism designed to modify capitated payments to health providers based on the relative level of "sickness" of the provider's patient population and is intended to provide a system in which "health plans or other prepaid entities with an enrollee population

that includes more high-cost enrollees than other plans will receive correspondingly higher total payments."¹² In doing so, risk adjustment is intended to "level the playing field," enabling plans to compete on the basis of quality and efficiency.¹²

Under some capitated managed care systems, health plans have an inherent incentive to seek out "healthier" patients and avoid enrolling "sicker" patients.¹³ Conversely, patients who have high-cost, debilitating illnesses may choose to enroll in a specific health plan that covers such expenses and avoid another plan that would not pay for such care. In either case, plans that avoid enrolling high numbers of chronically ill patients will reap greater profits than their counterparts that insure such patients.¹⁴ The risk adjustment model is designed to be a more equitable means of disbursing capitated payments by preventing such "cherry-picking" and by "rewarding" providers for enrolling chronically ill patients.^{13,15}

Already slated for Medicare implementation in 2000,¹⁶ the 1995 MinnesotaCare Law (Chapter 234) directs the Minnesota Department of Health (MDH) and the Department of Human Services (DHS) to develop a risk adjustment system for state-run health care programs. Forms of risk adjustment are currently in place in some private systems; the risk adjustment policy being implemented in the state's public programs will function in similar ways. The risk adjustment program currently under consideration by the MDH will likely consider age, gender, and prior diagnoses in evaluating a patient's risk of becoming ill. Other factors, such as race, income level, and education, are also being considered, as is a conversion factor that would enable policymakers to modify risk-

adjusted rates.¹²

It appears that little discussion about this policy has taken place among practicing physicians. In this two-pronged study, we assessed physicians' knowledge of and opinions about the developing risk adjustment policy. Additionally, physicians' attitudes toward risk adjustment were measured to examine their perceptions of health policy formation and communication between entities that influence policy formation in the state.

METHODS

The study sample consisted of 226 physicians currently serving as delegates, alternate delegates, officers, or trustees of the Minnesota Medical Association (MMA). We designed a survey to evaluate the demographics of the sampled population and included a one-paragraph description of risk adjustment quoted from MDH literature.¹⁷ We included four questions designed to assess the respondents' current level of knowledge about risk adjustment; answers were restricted to "yes," "no," or "do not know." In developing the questions, we assumed that none could be answered based on simply having read the paragraph, which provided only basic background information.

Respondents were asked to select from a list the three primary sources of information about risk adjustment (if any) and three primary sources of information on health policy (if any). They also judged the "validity" of 14 criteria that could be used to assess a patient's risk of becoming ill. Respondents scored each criterion 1, 2, 3, 4, or 5; a score of 1 indicated that the criterion was not valid/relevant, while a score of 5 indicated that the criterion was perceived as very valid/relevant. An open-ended question asked respondents to describe additional criteria that should be considered when assessing risk.

Respondents were then asked to select from a list the four entities in Minnesota that had the greatest influence on health policy formation. Respondents also identified the four entities that they believed *ideally* should have the greatest influence on health policy formation. Finally, a

Figure 1
Responding Physicians' Level of Knowledge About Risk Adjustment

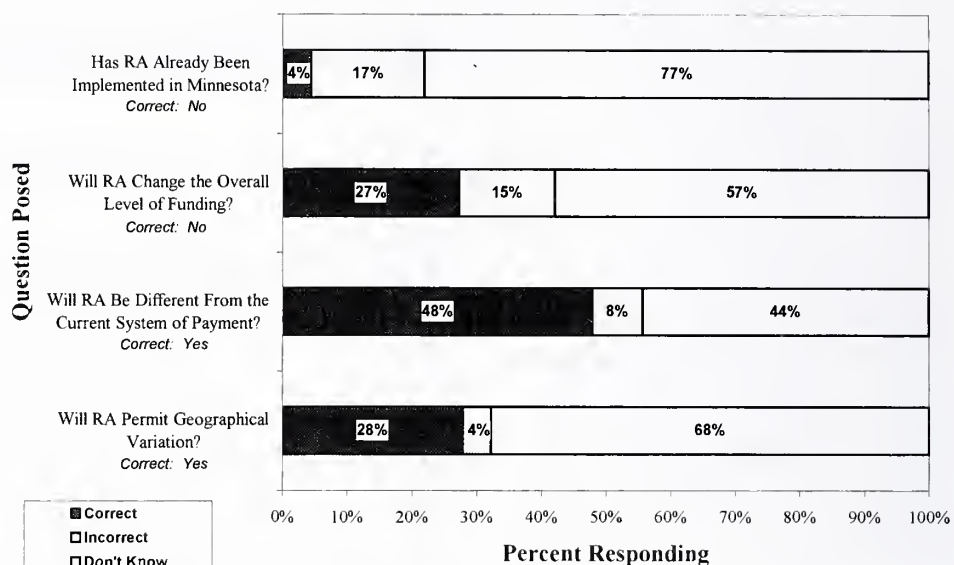
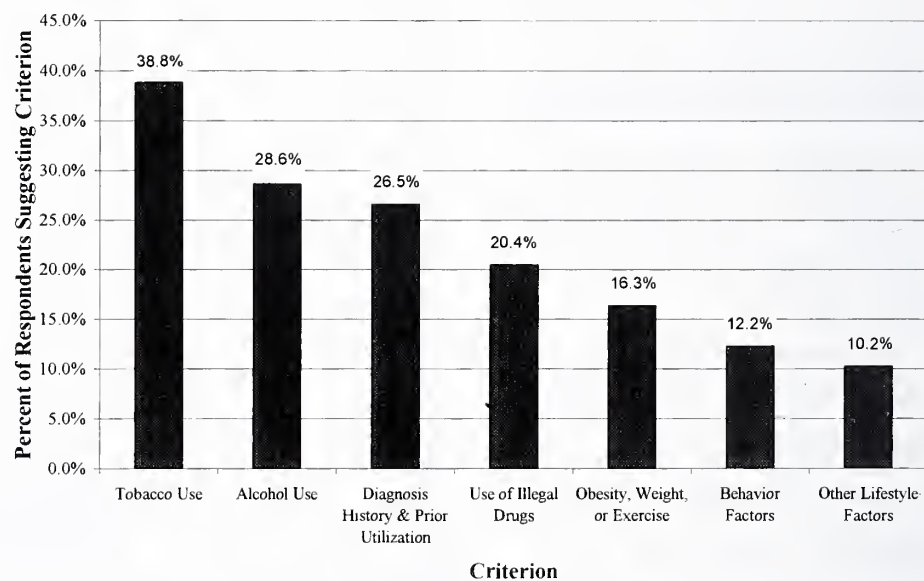


Figure 2
Additional Criteria Suggested Upon Which to Base Risk Adjustment



short paragraph from MDH literature¹² described the risk adjustment program's proposed conversion factor. Respondents were then asked whether the risk adjustment model should be modifiable through the use of such a conversion factor; answers were restricted to either "yes" or "no." To avoid any possibility of investigator bias, we used MDH-authored text wherever information about risk adjustment appeared in

the survey.

A cover letter describing the study was mailed with the survey to each physician in mid-July 1998. About two weeks later, a follow-up letter and another copy of the survey were mailed to physicians who had not responded. Results were analyzed by tabulating frequencies and percentages of responses and tested for statistical significance using Student's t-test where indicated.

Figure 3
Sources From Which Respondents Report Receiving
Risk Adjustment or Health Policy Information

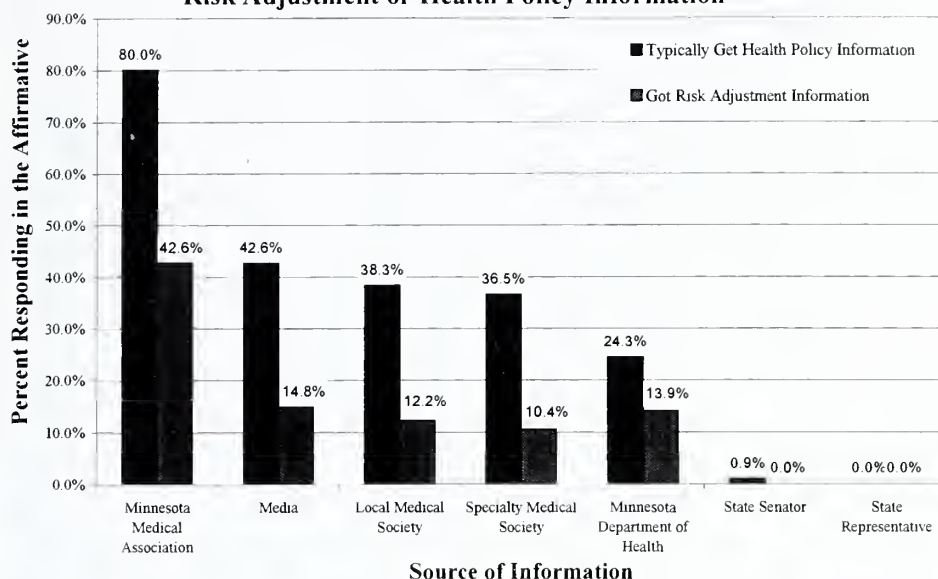
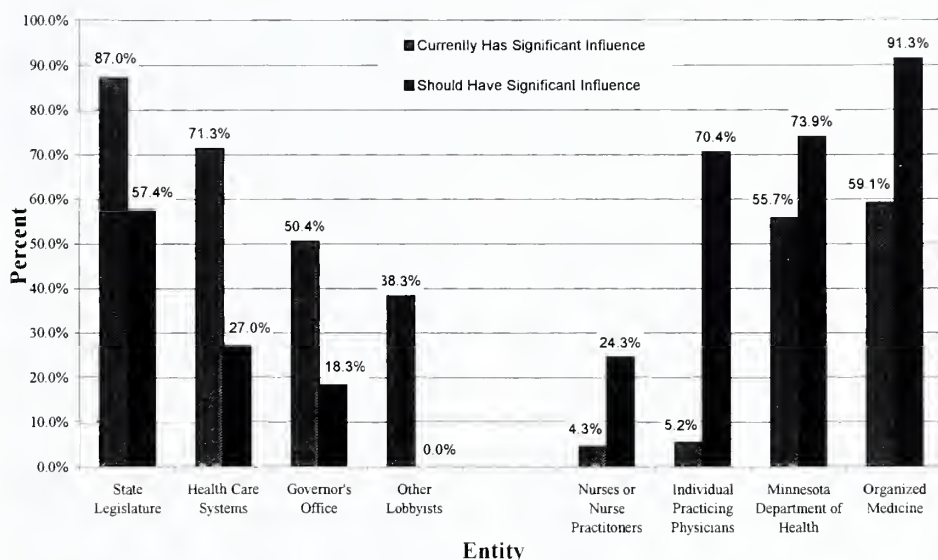


Figure 4
Responding Physicians' Evaluation of
Influential Entities in Health Policy Formation



RESULTS

Of the 226 surveys mailed, 115 (51%) were returned. Respondents averaged 51 years of age, had been in practice for 20 years, and had served in some capacity within the MMA for an average of seven years.

Most physicians incorrectly answered three of four questions designed to assess their knowledge of risk adjustment. On the remaining

question—whether or not risk adjustment would represent a significant difference in managing capitation payments as compared with the current system—48% of those surveyed correctly responded “yes,” although 44% responded that they did not know (Figure 1).

In evaluating criteria upon which a patient's risk of illness might be based, physicians selected HIV/AIDS, medical history, age, and family his-

tory to be most relevant. Urban vs. rural residence was ranked lowest in validity. Of the 115 respondents, 49 answered the open-ended question asking for additional criteria that should be used in assessing a patient's risk for illness. The use of tobacco, alcohol, and drugs, and prior utilization of resources were the four most commonly cited criteria (Figure 2). Fifty-four percent of respondents felt that the risk adjustment model should not be modifiable through the conversion factor; 39% said that it should, and 7% did not answer the question.

Respondents said that they learned about risk adjustment primarily from the MMA, although some said they received information from other sources as well. Eighty percent said they receive health policy information from the MMA; 43% said they typically get health policy information from the media, the second most cited source. State senators and representatives were the least cited source of health policy information (Figure 3).

Respondents felt that the state Legislature has the greatest influence on health policy formation. Health care systems ranked second, with organized medicine and the MDH third and fourth in influence, respectively. More than 90% of respondents indicated that organized medicine ideally should have significant influence on the state's health policy formation. The MDH was ranked second, followed by individual practicing physicians and the state Legislature (Figure 4).

DISCUSSION

RISK ADJUSTMENT

While many physicians (48%) knew that risk adjustment would represent a significant difference in managing capitation payments compared with the current system, familiarity with the details of this program is generally low. A majority of respondents (68%) did not know that the risk adjustment model would permit geographical variation in payments to providers. Similarly, most physicians (57%) were unsure about whether risk adjustment would change the

overall level of payments to providers. Twenty-seven percent correctly responded that the risk adjustment plan is intended to be budget neutral (Figure 1).

Respondents were unsure if risk adjustment has already been implemented in Minnesota: 17% said yes, 4% said no, and 77% reported that they did not know. Notably, however, while we intended that this question identify the respondents who were aware that risk adjustment had not yet been implemented in state-run programs, some respondents may have thought the question was asking about the prevalence of risk adjustment in private plans as well. Unlike state-run programs, some of which will begin implementing risk adjustment this year, some private programs have already been using risk adjustment to modify payments.

While many respondents answered "do not know" to questions about the risk adjustment model, accuracy was generally high among physicians who felt they knew the answer and selected either yes or no, suggesting that some physicians are fairly well-versed on this complex topic. Furthermore, when asked to rank the validity of criteria used to assess a patient's risk of illness, a majority of respondents demonstrated an understanding of risk adjustment. When asked to suggest additional criteria that should be considered in assessing a patient's risk of illness, many respondents offered insightful comments. In particular, physicians felt that tobacco use (39%), alcohol use (29%), and drug use (20%) would be valid markers of risk. Additionally, 27% indicated that diagnosis history and/or prior utilization of health care resources would be good risk predictors. These comments demonstrated that many respondents have a clear understanding of the conceptual framework of risk adjustment (Figure 2).

Opinion was divided on whether or not a conversion factor should be available to policymakers. Of those responding, 54% opposed using a conversion factor to further modify risk-adjusted rates, while 39% favored it. Eight physicians (7%) did not respond to the question. Interest-

ingly, a number of physicians who responded negatively made additional comments on the use of a conversion factor. One physician said it "will be too complex and could easily become a bureaucratic boondoggle." Another noted: "They will screw this up as they have done with other things before. It seems funny that people with nice suits sitting in boardrooms overlooking the Mississippi River know what we need best."

HEALTH POLICY FORMATION IN MINNESOTA

When asked to identify the three major sources for information about risk adjustment, 43% cited the MMA as their primary source. Surprisingly, physicians mentioned the media second most often (15%), slightly ahead of local and specialty medical societies. State senators and representatives were not ranked among the top three sources for risk adjustment information (Figure 3).

In identifying primary sources for general health policy information, 80% of respondents named the MMA. The media was mentioned second most often (43%), followed closely by local and specialty medical societies. One in four physicians said that they receive health policy information from the MDH. Only 1% of respondents mentioned getting health policy information from their state senator, and no respondents cited their state representative as a primary source for such information.

While a majority said they received health policy information from the MMA, these results are perhaps not unexpected considering the survey's select population (MMA delegates, officers, and trustees). However, we are somewhat surprised by the large number of physicians who received no information about risk adjustment from any source, although this appears to correspond with the number who responded "do not know" to the initial four questions about risk adjustment. Because 80% of physicians cited the MMA as a primary source for health policy information, but only 43% had learned about this policy from the MMA, this study may have taken place before the MMA had informed its mem-

bers about the specifics of this particular policy.

The low number of physicians who ranked their state legislator in the top three sources for health policy information indicates a profound lack of interaction between practicing physicians and their legislators.

Responses to our questions about influence on policy development revealed an imbalance in the perceived vs. ideal level of influence on health policy formation. Eighty-seven percent of respondents felt that the state Legislature has significant influence over health policy formation, while just 57% believed that ideally the Legislature should have significant influence. Health care systems were cited by 71% of respondents as having great influence, compared with only 27% who believed they should have such influence. While 38% felt that "other lobbyists" hold significant influence over health policy formation, no respondents believed that other lobbyists should have such influence (Figure 4).

If physicians perceive the Legislature, health care systems, and other lobbyists as being too influential in policy formation, then what entities do they consider underpowered? Respondents felt that practicing physicians (5%) and nurses/nurse practitioners (4%) currently do not have much influence over health policy formation. However, only 24% believed that nurses should have significant influence in policy formation, while 70% felt that practicing physicians should. Most physicians (91%) felt strongly that organized medicine should have great influence over health policy formation. Interestingly, the MDH was ranked closest to parity in "power," with 56% of respondents believing it has significant influence and 74% thinking it should. Each disparity reported represented a significant difference in the number of physicians perceiving the current level of influence with the ideal level of influence (Figure 4).

CONCLUSION

Assessing issues concerning health policy formation in Minnesota is complex and challenging. While a majority of this select sample of phy-

Lobbying 101: Cultivating Personal Connections with Legislators

By Rep. Thomas Huntley, Ph.D.

Much is made of the clout that professional groups like the Minnesota Medical Association have in state capitols. While the MMA's lobbying efforts are often effective in sharing the views of physicians with legislators, doctors who really want to influence policymaking at the Capitol in St. Paul need to do more than help pay for professional lobbyists. They need to develop personal connections with the lawmakers from their districts.

While critics might say that legislators spend too much time at the Capitol, lawmakers are fundamentally local people. Even the most powerful, long-serving committee chairs promptly answer mail from their districts and keep an ear to the ground for happenings in their areas. When it comes to lobbying, contact from a local physician will almost always receive more attention than from the president of the MMA.

Physicians I meet with often feel compelled to talk only about issues, and they might not contact me at all if there are few or no issues before the Legislature that affect them. Some might even view contacting a legislator when they don't have a specific issue to discuss as they would a patient scheduling an appointment just to say "hi." But politics is not medicine, and

hard evidence and fact are often less important than personal relationships.

Lawmakers are only human, and usually their first instinct is to look to their friends, or at least acquaintances, especially if they are from their home district. Although Minnesota law does not allow "winning and dining" of public officials, doctors who want to have an impact would do well to introduce themselves and to mix socially with their lawmakers. As in any interpersonal relationship, developing rapport over time creates an important foundation. Such a foundation is helpful in being heard over the din when a critical issue does arise at the Capitol.

Creating a connection with legislators is very simple, but it requires doctors to give up something already in short supply: time. Ultimately, taking time to make the personal connection is what it takes to create a foundation on which you can lobby your representative or senator more effectively.

State Rep. Thomas Huntley represents District 6B, comprised of east Duluth and neighboring townships. He is a professor of Biochemistry and Molecular Biology at the University of Minnesota–Duluth School of Medicine and a member of the House Health and Human Services Finance Division.

sicians does not have an intimate knowledge of risk adjustment policy, the respondents' evaluation of potential risk assessment criteria and inclusion of comments about the policy demonstrate an understanding of and support for the concept of risk adjustment based on diagnosis and age. Comments by some respondents further indicate a mistrust of the policymaking process. Although the underlying reasons for this mistrust are not directly addressed in this study, one might speculate that the comments represent broad concerns about the history of, or physicians' experience with, the policymaking process in Minnesota.

Physicians clearly trust organized medicine and receive much of their health policy information from the MMA. Communication between practicing physicians and the MMA is strong. While 87% of physicians responding to the survey believe that

the state Legislature has significant influence over health policy formation, virtually no physicians ranked their legislators among the three primary sources for health policy information. Increasing communication with legislators may be one way for physicians to gain influence in health policy formation and thereby decrease their disenchantment with the system.

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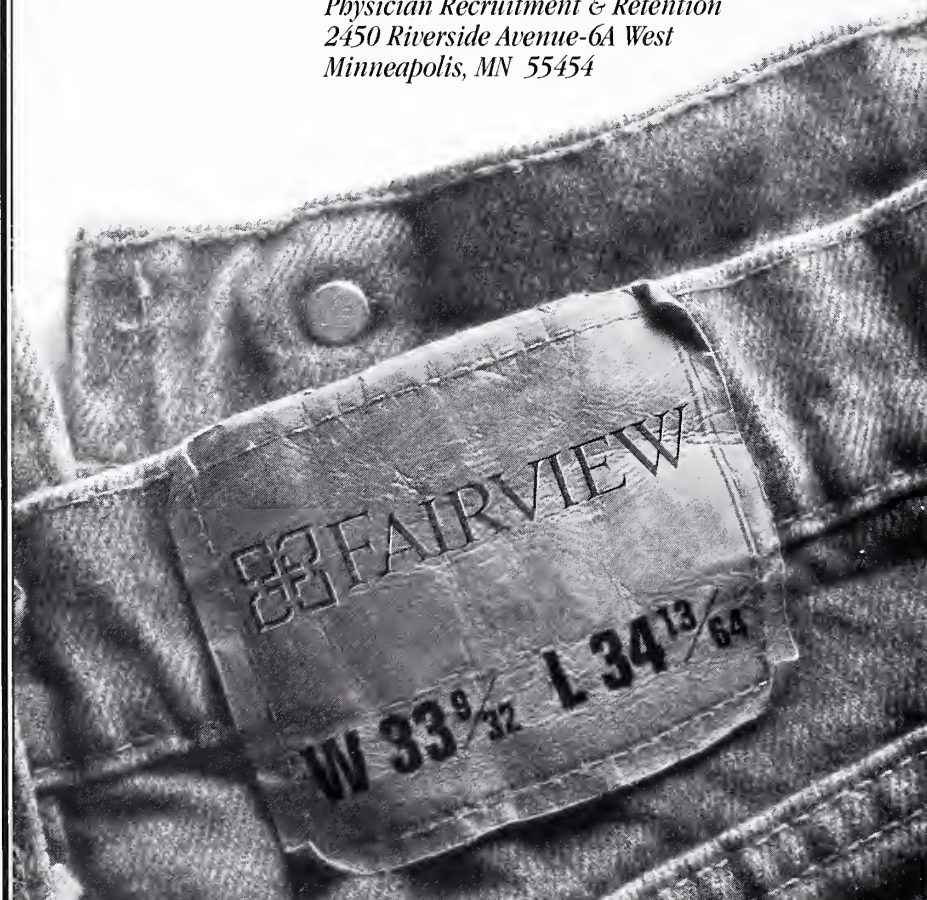
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CURIOSITY *continued from page 12*

not understand it. He was struck mute. He reached out and touched the legs: warm, hairy, clearly the patient's own and not prosthetics.

"I don't know," he said.

"What makes you think the patient had bilateral below-the-knee amputations?"

"It said so in the chart." We got the chart, and indeed, for this patient's past three admissions, "BKA times two" was listed under history. It was only after looking at the past five admissions that the transcriptionist's error became clear. The patient had been previously admitted twice for diabetic ketoacidosis—DKA. But once typed, BKA became enshrined chart lore and was repeated by every subsequent house officer as if it were true, even in the face of the evidence of their own senses.

Technology is wonderful and seductive, but when seen as more real than the person to whom it is applied, it may also suppress curiosity. When I was a house officer and installing one of the first right-heart catheters, the machine that showed intrapulmonic arterial pressures was enormous and was equipped with strain gauges rather than computer chips. Making it work was difficult. After the line was in, the attending, the nurse, and I tried desperately to adjust the machine to show the pulmonary arterial pressure waves. We could not get them. The line on the screen remained flat. We manipulated toggle switches and strain gauges for about 15 minutes. Nothing. Finally, I glanced at the patient: he was dead. We had been so engaged with the machine that we had missed this significant clinical event, which explained why the pulmonary arterial pressures were unobtainable. We assumed that the answer to the question lay in the machine and explored no further until it was too late.

What is the reward of curiosity? To the patient, it is the interest and physical propinquity of the physicians, which is therapeutic in and of itself. To the physician, curiosity leads not only to diagnoses but to great stories and memories, those irreplaceable "moments in medicine" that we all live for. When I was a young attending at San Francisco General Hospital, morning rounds usually consisted of briefly going over the 15 or 20 patients admitted to the team the night before and then concentrating on the "interesting" ones. I was righteous and was determined to teach the house staff that there were no uninteresting patients, so I asked the resident to pick the dullest.

He chose an old woman admitted out of compassion because she had been evicted from her apartment and had nowhere else to go. She had no real medical history but was simply suffering from the depredations of antiquity and abandonment. I led the protesting group of house staff to her bedside. She was monosyllabic in her responses and gave a history of no

substantive content. Nothing, it seemed, had ever really happened to her. She had lived a singularly unexciting life as a hotel maid. She could not even (or would not) tell stories of famous people caught in her hotel in awkward situations. I was getting desperate; it did seem that this woman was truly uninteresting. Finally, I asked her how long she had lived in San Francisco.

"Years and years," she said.

Was she here for the earthquake?

No, she came after.

Where did she come from?

Ireland.

When did she come?

1912.

Had she ever been to a hospital before?

Once.

How did that happen?

Well, she had broken her arm.

How had she broken her arm?

A trunk fell on it.

A trunk?

Yes.

What kind of trunk?

A steamer trunk.

How did that happen?

The boat lurched.

The boat?

The boat that was carrying her to America.

Why did the boat lurch?

It hit the iceberg.

Oh! What was the name of the boat?

The Titanic.

She had been a steerage passenger on the Titanic when it hit the iceberg. She was injured, made it to the lifeboats, and was taken to a clinic on landing, where her broken arm was set. She now was no longer boring and immediately became an object of immense interest to the local newspapers and television stations—and the house staff.

For whatever reason—economics, efficiency, increased demands on physicians for documentation, technology, or the separation of education from patient care—curiosity in physicians is at risk. I believe it is our duty, as those who now teach young physicians, to identify medical students with a gift for curiosity and take infinite pains not to suppress but to encourage that gift. Not only will patient care be enriched, but so will the lives of these physicians and the vigor of our art and science. Besides, it will be much more interesting.

MM

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Gregory Peck plays Nazi geneticist Dr. Josef Mengele in "The Boys from Brazil."

O wonder!
How many goodly creatures are there here!
How beauteous mankind is! O brave new world
That has such people in't!

—Miranda, "The Tempest"

BY JON HALLBERG, M.D.

The arts focus on misguided and evil uses of cloning and genetic engineering.

When William Shakespeare wrote "The Tempest" around 1610, colonization of the Americas had just begun. Reports reached England describing vast tracts of unexplored land, unusual creatures, and native peoples. Certainly Shakespeare was influenced by these reports when he set pen to paper to craft this play of storms, shipwrecks, magic, and uncharted land. Miranda, Prospero's daughter, is amazed by the sight of it. So, too, are we amazed as we begin to explore the new territory of cloning and genetic engineering.

Frogs, mice, worms, sheep, and cows have been

cloned. The race is on to map out the entire human genome. A renegade Chicago scientist wants to be the first to clone a human. O.J. Simpson's bloody glove and Monica Lewinsky's blue dress have brought terms like "PCR" and "DNA fingerprinting" into our living rooms (though an understanding of those terms is lacking, as O.J.'s case made clear). *Time* magazine recently devoted almost an entire issue to the medical breakthroughs expected through genetic engineering. According to a *New Yorker* article, Iceland will contract with a biotech firm to create a database of health, personal, and genetic information on virtu-

ally all of its citizens. Not surprisingly, exciting and terrifying ideas such as these have also found their way into literature and film. Yet some of these works were created long before Watson and Crick delineated the structure of DNA in 1953.

The modern definition of the term "clone" is genetically identical cells or organisms created asexually from a single ancestor. But the idea of a clone, or an exact replica, has fascinated humankind for centuries. Clones have appeared in mythology, folklore, and literature. Many of our late 20th-century images of clones are shaped by the 19th-century stories of Dracula, Frankenstein, and Dr. Jekyll and Mr. Hyde.

Without exception, both old and modern portrayals depict misguided and frankly evil uses of cloning. The 1978 film "The Boys from Brazil," based on the book by Ira Levin, portrays Dr. Josef Mengele's attempt to create clones of Adolf Hitler. Mengele (played by Gregory Peck) and his colleagues know that nature is not in and of itself sufficient to create an exact copy. Environment plays a crucial role. They attempt to recreate the environment in which the young Hitler lived, even if that means killing the clones' "fathers." Their efforts are ultimately

thwarted by a Simon Wiesenthal-like character, played brilliantly by Laurence Olivier.

The physician-writer Michael Crichton also warned of the consequences of cloning in his 1990 novel, "Jurassic Park," subsequently made into a film. He tells the story of a theme park populated with dinosaur clones created by a technique that extracts dinosaur DNA from prehistoric mosquitoes preserved in resin (an intriguing idea that has so far proved unworkable). Though the message may get lost amid the breathtaking special effects, Crichton calls attention to the unpredictable nature of a clone. Even if the genetic material could be replicated, the essence of one's character is harder to predict and control.

Genetic engineering made its first appearance in pop culture in Aldous Huxley's 1932 novel, "Brave New World." It is viewed as one of this century's greatest works, not so much for its prose as for its dystopian, futuristic ideas. Huxley, the son of a physician, incorporated some of the latest scientific ideas of his day, particularly eugenics, into this novel. It opens with a scene in the Central London Hatchery and Conditioning Centre, where childbirth is an orderly, unemotional

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process. The facility includes the Fertilizing Room, the Bottling Room, the Social Predestination Room, and finally the Decanting Room. Embryos are randomly designated as Alphas and Betas—the privileged classes—or “standard” Gammas, “unvarying” Deltas, and “uniform” Epsilons—the unquestioning working classes. All of this is done to fulfill the World State’s motto: “Community, Identity, Stability.” The novel is a disturbing look at a future void of chance and individuality.

Sixty-six years later, another film addressed some of the same ideas while bringing the technology up to date—“Gattaca,” starring Ethan Hawke and Uma Thurman. (The letters in the title refer to the nucleotides guanine, adenine, thymine, and cytosine, the building blocks of DNA.) The setting is the “not too distant future,” and a pivotal crime scene drives that eerily home: it is a time when saliva or an eyelash or a flake of skin can reveal one’s identity.

The film is strongest when it explores issues surrounding eugenics and the consequences of being flawed in an otherwise perfect society. One of the opening lines sets the tone: “They used to say that a child conceived in love had a greater chance for happiness. They don’t say

that anymore.” In this world, a couple desiring a child visits the local geneticist to select out potential problems, including such possibly prejudicial conditions as premature baldness, myopia, alcoholism, addictive susceptibility, and obesity. People who were “unlucky” enough to be conceived out of love—the “unnatural” way—are treated as second-class citizens. Thus, a new underclass has emerged, determined neither by social status nor skin color. A supreme specimen’s genetic identity is a valuable commodity for the unscrupulous. So begins the transformation of the protagonist from flawed to flawless. As his black market geneticist says, “You could go anywhere with this guy’s helix tucked under your arm.”

As we enter the 21st century, perhaps we can look forward to a portrayal of the utopian and beneficial aspects of genetic engineering and cloning. At the least, artists, writers, and filmmakers will force us to grapple with many of the moral and ethical issues that lie ahead in these uncharted waters.

MM

Jon Hallberg is a clinical assistant professor in the Department of Family Practice and Community Health at the University of Minnesota. His Medicine & the Arts column appears periodically in Minnesota Medicine.

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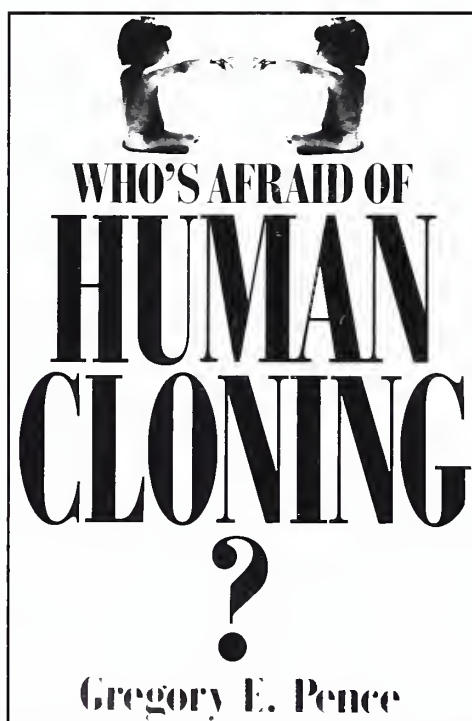
A Case for Cloning

Philosopher Gregory E. Pence argues in favor of human cloning, a controversial stance that proves problematic at times in his book, "Who's Afraid of Human Cloning?"

Reviewed by Robert G. McKinnell, Ph.D.

Someone once remarked that war is too important to be left to the generals. Similarly, it might be said that cloning is too important to be left to the cloners. Gregory E. Pence, a professor of philosophy and author of "Who's Afraid of Human Cloning?" (Rowman and Littlefield, 1998) would most likely agree. Indeed, Pence asserts that cloning is a philosophical issue. "Most of the questions are not about scientific facts but about ethics, human nature, and public policy," he writes.

For the most part, Pence's book attends to the philosophical issues that led him to vigorously support human cloning. He does provide some biology for readers who are not knowledgeable about the mechanics and art of cloning. While the lay media sometimes discuss and illustrate "carbon copy" frogs, sheep, cows, and humans, Pence appropriately notes that a cloned human would be no "carbon copy" of another human. He presents an interesting discussion of Chang and Eng, the conjoined twins who presumably developed from a single zygote. One of the twins "became a morose alcoholic, the other remained a benign and cheerful man," Pence writes. Even if a human's nuclear genes were cloned, it would be impossible to clone his or her environment. Pence quotes Stephen Jay Gould, who asked, "Does anyone believe that a clone of Beethoven would sit down one day and write a Tenth Symphony in the style of his early nineteenth cen-



ture forebear?"

Pence is unabashedly pro-human cloning. His favorable view is driven largely by compassion for people who are reproductively compromised. He cites a number of hypothetical cases that could be aided by cloning. For example, a sperm-free husband and his wife wish to have a child. Rather than using sperm from an unknown, unrelated donor, the couple could have a nucleus from the sterile husband inserted into the wife's enucleated ovum. The resulting cloned embryo would then be transferred into the wife's reproductive tract, and gestation would occur in a normal manner. Another example in-

volves eugenics, although that term is not used. In this case, a young couple elects to use the genome of a 90-year-old grandfather, a man in good health who never had cancer, heart disease, or cerebrovascular disease. By cloning the old but healthy grandfather, the couple hopes to give their child a wonderful genetic endowment, with significantly less chance of disease.

Pence also spells out how cloning could provide a means of reproduction for lesbian couples; one partner would be the nuclear donor and the other would be the enucleated egg donor who undergoes pregnancy. He suggests that gay men would similarly benefit but does not detail how it would occur.

As an advocate of a biological procedure that is of concern to a number of citizens, Pence ought to make an extraordinary effort to get his biological facts straight. He often fails to do that. He states, for example, that Ian Wilmut, the leader of the team that produced the cloned lamb Dolly, overcame "known truths" and "putative facts"—the alleged impossibility of cloning from adult cell donors. Nonsense! Cloning depends on a complete set of genes in the donor nucleus. Part of the central dogma of cell biology for an entire generation was the idea that most somatic cells contain all the nucleotide sequences of the DNA of the zygote from which they derived; hence, most somatic nuclei have a complete genome. Somatic nuclei

should therefore be totipotent if a procedure could be developed to demonstrate that potentiality.

Marie Di Berardino, a pioneer who has been involved in experimental cloning longer than any other scientist, alive or otherwise, wrote in her pre-Dolly monograph "Genomic Potential of Differentiated Cells" (Columbia University Press, 1987), "I favor the idea that we have not yet completely revealed the genomic potential of differentiated nuclei." Although adult totipotency had not yet been demonstrated when she wrote her book, Di Berardino did not preclude its possibility. Wilmut did not overcome "known truths" or "putative facts"—he added to existing studies in a most splendid way. Nor did he turn preceding studies into "falsehoods," as Pence asserts.

Several errors occur in one short paragraph about the cloning efforts of Karl Illmensee and Peter Hoppe. Illmensee and Hoppe reported that they cloned mice from preimplantation embryos, not from "the nuclei of adult mice cells," as Pence states. Their achievement did provoke ex-

cited interest back in 1981, and three of the mice ended up on the cover of *Cell*, not *Science*. Further, none of the mice were spotted, though Pence claims that spots had been "clumsily drawn on the coats by a black marking pen." Fraudulent mice were marked with black ink a number of years ago, but that was another case that had nothing to do with cloned mice.

Pence refers to libertarians and the "market" with respect to allocation of resources related to "human wants." I hope that the "market" does not drive ethical decisions—heaven help us if it does, and who knows what humans want with regard to cloning research? I have heard of no great public drive to perform cloning for the masses.

I could list another 20 or so problems with the text, but instead of further red-marking the book, as we professors are wont to do, let me simply state that I disagree with the premise of the book, which is that cloning, when available, will be a good thing for us humans. I'd like to insert triage into the polemic regard-

ing cloning. Is it more important to spend limited funds designated for biomedical research to develop the technology for producing humans at the laboratory bench, or would it be more humane to spend those scarce research funds to prevent and treat already existing human pathology? I endorse the latter alternative.

There are other ethical questions. Most of us enjoy the incredible freedom of being our unique selves. How could any child who was custom-made to replace a deceased daughter, son, mother, father, or notable person ever live up to our expectations? Young people have enough problems being themselves; let us not weigh them down with impossible expectations.

Finally, another ethical problem. We regularly clone animals with what appear to be a normal set of chromosomes. Sometimes these clones develop perfectly for a period of time and then become abnormal. We discard such aberrations of the cloning procedure. Do we have the right to produce humans in a similar manner and then "discard" them if they are somehow flawed?

Let me plead for hands-off human cloning. Cloning can provide new understandings of how genes function, and mammalian cloning promises better and cheaper pharmaceuticals. Cloning, used properly, enhances the human experience. It was not designed to create humans at the bench. MM

Robert McKinnell is the Morse Alumni Distinguished Professor of Genetics and Cell Biology at the University of Minnesota. He is featured in this month's Face to Face profile, on page 6.

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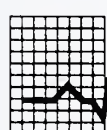
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New Ulm Medical Center

Amidst the prairies of southern Minnesota, the city of New Ulm is renowned as a scenic community of parks, historic sites and beautiful homes. A diverse industrial base, outstanding schools and comprehensive health-care services have played major roles in the growth and success of New Ulm. The New Ulm Medical Center is currently looking for physicians to fill the following needs: **OB/GYN, Family Practice, Internal Medicine, Orthopedic, Pediatrics**, and a part-time **Radiologist**. Generous salary and benefits are available.

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BC/BE General Surgeon and **Obstetrician-Gynecologist** needed to join a practice of six primary care doctors, an orthopaedic surgeon, and other support staff in a 7500 community located in the lovely Western lake country of MN. We are looking for a general surgeon who has training and/or interest in performing c-sections as well as various other surgical skills. The Ob-Gyn doctor we are seeking needs to provide consults on high-risk patients, gyn surgeries, and to develop their own practice. The family physicians are currently delivering babies and some will wish to continue. As an employee of the MeritCare Medical Group you will receive competitive salaries, full benefit package of insurance and time away, plus an excellent retirement plan funded by the group. For more information, please contact Kathleen Toft, 1-800-437-4010 or email <Kathetoft@meritcare.com>.



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Institute for Medical Education

CONTINUING MEDICAL EDUCATION 1999 CONFERENCE SCHEDULE

Family Medicine Today	March 11 – 12
20th Annual Occupational Medicine Update	March 19
Obstetrics & Gynecology Update	April 8 – 9
NIOSH-Approved Spirometry Training	April 19 – 20
Causes for Concern	April 30
Spasticity	May 6 – 7
Fitting the Work to the Worker	May 6 – 7
• Pre-placement Evaluation	
• Advanced Medical Case Management	
Primary Care	October 13 – 16
Critical Care	November 11 – 12
Cardiovascular	December 2 – 3

In 1996, the HealthPartners Institute for Medical Education (IME) was created to support the ongoing development of excellence in clinical practice through a wide variety of educational services. The Institute has development, coordination and oversight responsibilities for the undergraduate, graduate and continuing education initiatives for health professionals within the various divisions of HealthPartners including Regions Hospital.

FOR FURTHER INFORMATION CONTACT:

*Institute for Medical Education
Continuing Education*

640 Jackson Street • St. Paul, MN 55101 • Phone 651-221-3223 • Fax 651-292-4773

CME

A Calendar of Continuing Medical Education Courses

Provided through the MMA Committee on Accreditation and CME. For assistance with scheduling meetings or for information on future medical meetings and CME courses, please contact the MMA office: 3433 Broadway Street NE, Suite 300, Minneapolis, Minnesota 55413-1761; 612/378-1875. For a complete listing of our calendar, visit the MMA home page at www.mnmed.org. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

MARCH 1999

March 6 **Annual VitreoRetinal Surgery Retina Update Conference 1999** Allina Health System and VitreoRetinal Surgery, P.A.; Radisson Hotel & Conference Center, Plymouth, MN. CONTACT: Dian Johnson, 570 Physicians Building, 6363 France Avenue South, Edina, MN 55435; 612/929-1131 or 800/635-1797.

March 8-12 **Tutorials in Diagnostic Radiology** Mayo Foundation; Keystone Resort, Keystone, CO. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

March 10 **Infection Control Lecture** Hennepin County Medical Center; HCMC Pillsbury Auditorium, Minneapolis, MN. CONTACT: Continuing Medical Education, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415; 612/347-2075, toll-free 888/263-4262.

March 11-12 **Family Medicine Today** Institute for Medical Education-HealthPartners; Holiday Inn East, St. Paul, MN. CONTACT: Sharon Kopp, 640 Jackson Street, St. Paul, MN 55101; 651/221-3223.

March 19 **Occupational Medicine Update** Midwest Center for Occupational Health & Safety; Holiday Inn East, St. Paul, MN. CONTACT: Sharon Kopp, 640 Jackson Street, St. Paul, MN 55101; 651/221-3223.

APRIL 1999

April 8-9 **Ob/Gyn Update** Institute for Medical Education-HealthPartners; Holiday Inn East, St. Paul, MN. CONTACT: Sharon Kopp, 640 Jackson Street, St. Paul, MN 55101; 651/221-3223.

April 11-16 **Advanced Management Program for Healthcare Executives** The University of Minnesota, Carlson School of Management, Executive Development Center in partnership with Mayo Clinic; Mayo Clinic, Rochester, MN. CONTACT: Kay Kenitz, Mayo Clinic, International Education, 200 First Street SW, Rochester, MN 55905; 507/284-8399.

April 16 **15th Annual Heart Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention

Infection Control CME

The following activities have been designed to meet the Minnesota Board of Medical Practice physician licensure requirement for CME credit in the subject of infection control.

March 10 **Infection Control Lecture** Hennepin County Medical Center; HCMC Pillsbury Auditorium, Minneapolis, MN. CONTACT: Continuing Medical Education, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415; 612/347-2075, toll-free 888/263-4262.

June 23 **Infection Control Lecture** Hennepin County Medical Center; HCMC Pillsbury Auditorium, Minneapolis, MN. CONTACT: Continuing Medical Education, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415; 612/347-2075, toll-free 888/263-4262.

October 26 **Infection Control Lecture** Hennepin County Medical Center; HCMC Pillsbury Auditorium, Minneapolis, MN. CONTACT: Continuing Medical Education, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415; 612/347-2075, toll-free 888/263-4262.

ENDURING MATERIALS

Videotapes: **Bloodborne Pathogens, Antibiotic Update and Resistance, TB Update, Flesh-Eating Strep** Allina Health System. CONTACT: Patricia E. Walton, 5601 Smetana Drive, PO Box 9310, Minneapolis, MN 55440-9310; 612/992-2867.

Videotapes: **Antibiotic Resistance/STDs, HIV/Adult Immunizations, Diarrheal Parasitic Diseases/Foodborne Diseases** University of Minnesota. CONTACT: Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Center, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Mail Drop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

April 16-17 **Osteoporosis: A Clinical Perspective** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

April 16-17 **Gastroenterology and Nutrition for the Primary Care Physician** Children's Hospitals and Clinics; Mad-



Continuing Medical Education

presented by Allina Health System

April 1999

19-20 Advanced Trauma Life Support (ATLS)

PRESENTED BY: Allina Health System

LOCATION: United Hospital Conference Center, St. Paul, MN

24 1999 Retina Update

PRESENTED BY: Phillips Eye Institute

LOCATION: Phillips Eye Institute, Heilicher Auditorium, Minneapolis, MN

30 Spring Cardiology Conference

PRESENTED BY: Minneapolis Heart Institute Foundation and Abbott Northwestern Hospital

LOCATION: The Metropolitan Clubroom, Minneapolis, MN

May 1999

5 Principles of Diabetes Management: Basics & Trends

PRESENTED BY: Allina Health System

LOCATION: United Hospital, St. Paul, MN

20 Advanced Diabetes Management: Complications & Trends

PRESENTED BY: Allina Health System

LOCATION: Abbott Northwestern Hospital, Minneapolis, MN

21 International Society of Minimally Invasive Cardiac Surgery (ISMICS)—2nd Annual Meeting and Scientific Sessions

PRESENTED BY: ISMICS

LOCATION: Paris, France

Infectious Disease Educational Videotape Rental

We also offer five infectious disease videotape rentals. Each video will fulfill one hour of continuing education in infection control as required for relicensure by the Minnesota Board of Medical Practice. For further information, call Pat Walton at (612) 992-2867

For more information contact:

Allina Clinical Education and Research Administration at (612) 992-2424



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Visit the Allina CME Calendar at <http://www.allina.com>

den's Resort, Brainerd, MN. **CONTACT:** Betsy Julius, Medical Education, Children's Hospitals and Clinics, 2525 Chicago Avenue S, Minneapolis, MN 55404; 612/813-5884.

April 16-17 **Annual Meeting of the North Central Chapter Infectious Diseases Society of America** University of Minnesota; Hilton Hotel, Minneapolis/St. Paul Airport. **CONTACT:** Mary Majerus, Division of Transfusion Medicine, Hilton 210, Mayo Clinic, 200 First Street SW, Rochester, MN 55905; 507/284-3989.

April 22-23 **Spring Refresher** Minnesota Academy of Family Physicians; Hyatt Regency Hotel, Minneapolis, MN. **CONTACT:** Minnesota Academy of Family Physicians, 600 South Highway 169, Suite 1680, St. Louis Park, MN 55426; 612/542-0130 or 800/999-8198.

April 22-24 **Hip and Knee Reconstruction: An Update** Mayo Foundation; The Pointe Hilton at Squaw Peak, Phoenix, AZ. **CONTACT:** Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

MAY 1999

May 4-7 **Sixth International Surgical Pathology Symposium** Mayo Medical Laboratories; Hotel Inter-Continental, Prague, Czech Republic. **CONTACT:** Julie McAdams, 200 First Street SW, Rochester, MN 55905; 507/284-8599.

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May 21 **Poisonous Plants Symposium** Hennepin County Medical Center; Pillsbury Auditorium, HCMC, Minneapolis, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

JUNE 1999

June 16-18 **63rd Annual Course, Advances in Breast, Endocrine, and Cancer Surgery** University of Minnesota Medical School, Department of Surgery; Willey Hall, University of Minnesota, Minneapolis, MN. CONTACT: Office of Continuing Medical Education, University of Minnesota, 107 Radisson Hotel Metrodome, 615 Washington Avenue SE, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636 or fax 612/626-7766.

June 23 **Infection Control Lecture** Hennepin County Medical Center; HCMC Pillsbury Auditorium, Minneapolis, MN. CONTACT: Continuing Medical Education, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415; 612/347-2075, toll-free 888/263-4262.

SEPTEMBER 1999

Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

CentraCare Clinic is a progressive and growing 97-physician multi-specialty clinic with 8 Central Minnesota sites. Our clinics offer a competitive income and benefits package and are conveniently located between the Twin Cities and prime Minnesota lake areas. St. Cloud offers an outstanding lifestyle with quality schools and abundant recreational activities. CentraCare Clinic is currently recruiting for the following areas:

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- Infectious Disease
- Neurology
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- Endocrinology
- Non-interventional Cardiology
- Family Practice
- Pediatrics
- Obstetrics

Fairmont Clinic

Mayo Health System

Having growth and expansion, the Fairmont Clinic — part of the Mayo Health System — a 20-plus physician multispecialty clinic is currently recruiting additional BE/BC physicians in the following specialties:

- Family Practice (including OB)
- Internal Medicine
- Orthopedics
- OB/GYN
- Anesthesiology

Fairmont Clinic guarantees salary the first two years with a production bonus. We also have an excellent benefit package including sabbatical and generous CME.

For consideration to be a part of our team in southern Minnesota, please contact:

DuWayne Hansen, M.D., Medical Director
Mr. Ennis Arntson, Administrator
800 Clinic Circle, Fairmont, Minnesota 56031
Phone: 507-238-8596 Fax: 507-238-8510
Email: hansen.duwayne@mayo.edu
arntson.ennis@mayo.edu

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| Internal Medicine | Ophthalmology |
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Classified rates are \$2.00 a word. Minimum monthly charge is \$50; with box number \$5 additional. Ads will not be accepted by phone.

- Placement of ads must be made six weeks before the date of publication, e.g., March 15 for May ad. Please send ad requests to *Minnesota Medicine*, 3433 Broadway Street NE, Suite 300, Minneapolis, Minnesota 55413-1761; or by fax, 612/378-3875; or e-mail, mm@mnmed.org
- The publisher reserves the right to decline or withdraw advertisements. The publisher is not responsible for clerical or typographical errors and is not permitted to divulge the identity of advertisers who have replies sent to box numbers.
- Cancellation of ads must be made by the first of the month preceding month of issue.

Mankato Clinic, Ltd., is seeking additional BC/BE physicians in the following specialties: occupational medicine, dermatology, gastroenterology, pulmonary medicine, radiology, and urgent care. The Mankato Clinic is a 70-physician multispecialty group practice in south-central Minnesota with a trade-area population of 250,000+. Guaranteed salary first year, incentive thereafter with full range of benefits and liberal time off. For more information, call Dr. Bryon C. McGregor, Medical Director, or Roger Greenwald, Executive Vice President, 507/625-1811, or write PO Box 8674, Mankato, MN 56002-8674. (*10/98-R)

Urgent Care Physicians: Independent group seeking part-time/full-time physicians to staff our urgent care facilities in Bloomington, Burnsville, Edina, and Lakeville. Contact the director of support services, 612/985-8931, or send inquiries to Quello Clinic Ltd., 7801 East Bush Lake Road, Suite 300, Bloomington, MN 55439. (*6/98-R)

Family Physicians: Independent, well-established suburban FP group seeking part/full-time FPs who like doing OB and full FP services. Clinics in Bloomington, Burnsville, Edina, Eden Prairie, Lakeville, and Savage. Excellent call schedule. Contact: Medical Director at 612/985-8922 or write Quello Clinic Ltd., 7801 East Bush Lake Road, Suite 300, Bloomington, MN 55439. (*7/98-R)

Olmsted Medical Center is seeking BC/BE physicians in family medicine and emergency medicine to join our 85-physician multispecialty group. Great opportunity for well-trained physicians to join a family-friendly group in a dynamic, progressive practice. In addition to its main office and hospital in Rochester, the Olmsted Medical Center system includes 11 branch office locations in southeastern Minnesota. Excellent salary and benefits, including health benefits, malpractice, spending accounts, educational funds, profit sharing, 401K/403B, and relocation assistance. Send

CV to Lois Till-Tarara, Olmsted Medical Center, 1650 Fourth Street SE, Rochester, MN 55904; 507/287-2430, or fax 507/285-8973. (*3/99-R)

Clinic Space Available for Subleasing: New, beautifully finished medical space in Phase 2 of the WestHealth Medical Building. Building amenities include free parking, on-site laboratory, and pharmacy. Clinic space includes six examination rooms and on-site x-ray. Ideal for dermatology, allergy, general surgery, or plastic surgery. For more information, please call: 612/383-0770. 4-3/99

Internal Medicine—Western Suburban Minneapolis: Full-time opportunity for BC/BE general internist at Wayzata Internal Medicine. Join seven BC internists practicing at Wayzata and Shorewood/Excelsior Primary Physician Network clinics. For immediate consideration, send CV and letter of inquiry to Ms. Fisher, Primary Physician Network-7N, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416; 612/993-2819. For more information, call Chris Johnson, M.D., 612/993-6654, or Missy Fisher, 612/993-6025. 3-4/99

Urgent Care: Part-time family practice physicians needed. Northwest suburbs of Minneapolis. Facility open evenings, weekends, and holidays. Competitive salary. Call Tom Evans, M.D., Medical Director, 612/420-7048 or 612/420-5279. 6-3/99

Falls Medical Search Seeks Physicians for practice opportunities locally and nationally. To explore new practice options confidentially, send your CV or call Pat Falls, Falls Medical Search, 34 Forest Dale Road, Minneapolis, MN 55410; 612/922-0207 or 800/383-8916. (*5/92-R)

Family Physicians: Busy chiropractic clinic in Bloomington seeking family physician, one to two mornings a week, to provide medical care for our patients. Please contact Molly at Cedar Center Chiropractic, 612/858-8340. 3-5/99

St. Cloud Medical Group; family practice, pediatrics, ob/gyn, and surgery: The St. Cloud Medical Group is an independent 35-physician multispecialty group in central Minnesota. The group has an excellent patient base and an excellent reputation in the St. Cloud community. Competitive compensation program, excellent fringe benefit package, and opportunity to be a partner in a physician-owned organization. Send curriculum vitae to Daryl Mathews, St. Cloud Medical Group, 1301 W. St. Germain Street, St. Cloud, MN 56301; or call 320/251-8181; fax 320/251-6942. 5-3/99

Fergus Falls Medical Group, P.A.: The Fergus Falls Medical Group is expanding its 35-physician multispecialty clinic

and is seeking physicians in the following specialties: ENT, family practice, general surgery, dermatology, orthopedics, psychiatry, and internal medicine. Excellent salary/benefits package includes guaranteed salary the first year with full partnership after one year. For confidential information on this opportunity, contact David T. Bjork, M.D., or Jim Wilkus, Administrator, 615 South Mill Street, Fergus Falls, MN 56537, 800/247-1066. EEO/AA. 3-3/99

Family Practice—Western Suburban Minneapolis: Full- or part-time opportunity for BC/BE family physicians in Golden Valley, Long Lake, Wayzata, or Shorewood/Excelsior. Join 30 primary care physicians practicing at eight Primary Physician Network clinics. For immediate consideration, send CV and letter of inquiry to Ms. Fisher, Primary Physician Network—7N, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416; fax 612/993-2819. For more information, call Chris Johnson, M.D., 612/993-6654, or Missy Fisher, 612/993-6025. 3-4/99

MDsearch assists medical groups and hospitals in their recruiting efforts. For confidential information on opportunities in the Upper Midwest, send CV and/or call collect Mary Jo Cordes, MDsearch, PO Box 21507, St. Paul, MN 55121; 651/454-7291. Fax: 651/454-7277. (2/93-R)

continued

FAMILY PRACTITIONERS WEST UNION, IOWA

Gundersen Clinic, Ltd., is seeking two BC/BE Family Practitioners to join our practice in the picturesque hills of northeast Iowa. West Union is part of Gundersen's regional rural network, a system staffed primarily with Family Physicians. The regional network is supported by both on-site and immediate phone consultative services (Medlink) and from the 300 plus multi-specialty physician group in La Crosse, Wisconsin.

The West Union practice includes six community clinics, with the hospital and main practice located in West Union. The practice currently includes five Physicians (including a General Surgeon) and four Physician Assistants. Obstetric practice is highly desirable. Call is 1:4. Gundersen Clinic offers competitive salaries and excellent fringe benefits.

If you are looking for a practice that has all the positives of rural life, coupled with the strengths and support of a large multi-specialty teaching institution, please send letter of application and Curriculum Vitae to Frank Perez-Guerra, Manager, Recruitment, Retention and Resource Planning, Gundersen Clinic, Ltd., 1836 South Avenue, La Crosse, Wisconsin 54601; or call 1-800-362-9567, extension 6325.

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BUFFALO CLINIC, P.A.

The Buffalo Clinic and Monticello Clinic, an independent physician-owned practice is seeking to add BE/BC physicians in:

- Family Practice
- Pediatrics

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Linda Dircks, Administrator

Buffalo 
Clinic

1700 Hwy 25 North, Buffalo, MN 55313
Phone: 612/287-6877 Fax: 612/287-6805

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Please contact:
Allina Health System
Debbie Modder
800-248-4921

Fax: 612-992-2927
Email: dmodder@allina.com

FAMILY PRACTITIONERS

Gundersen Clinic, Ltd., is seeking BC/BE Family Practitioners for a variety of opportunities located in southwestern Wisconsin, northeastern Iowa and southeastern Minnesota to be part of Gundersen's regional rural network, a system staffed primarily with Family Physicians. Gundersen Clinic's regional rural network is supported by both on-site and immediate phone consultative services (Medlink) and from the 300 plus multi-specialty physician group in La Crosse, Wisconsin.

Gundersen Clinic offers competitive salaries and excellent fringe benefits.

If you are looking for a practice that has all the positives of rural life, coupled with the strengths and support of a large multi-specialty teaching institution, please send letter of application and Curriculum Vitae to Frank Perez-Guerra, Manager, Recruitment, Retention and Resource Planning, Gundersen Clinic, Ltd., 1836 South Avenue, La Crosse, Wisconsin 54601; or call 1-800-362-9567, extension 6325.

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Equal Opportunity Employer

BC/BE Internist: The Fergus Falls Medical Group, P.A., is recruiting a seventh BC/BE general internist to join its 35-physician multispecialty group. Additional training with either echocardiography or nephrology/dialysis management would be helpful. Outstanding opportunity for well-trained individual interested in balancing personal values and professional endeavors. Excellent salary/benefits package includes guaranteed salary the first year with full partnership after one year. For confidential information on this opportunity, contact David T. Bjork, M.D., Bruce E. Money, M.D., or Jim Wilkus, Administrator, 615 South Mill Street, Fergus Falls, MN 56537, 218/739-2221 or 800/247-1066. EEO/AA. 3-3/99

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Urgent Care

HealthPartners is an organization committed to preventive medicine, health promotion and high quality health care. We are seeking BC/BE Family Practice, and Internal Medicine and Pediatric physicians to work evenings and weekends at our Urgent Care clinics.

The Urgent Care clinics are supported by a 24-hour Careline that is staffed with specially trained registered nurses. These nurses use a telephone triage system to direct patients and arrange for the most appropriate care. X-ray, lab and pharmacy services are located at each clinic, which are located in Apple Valley, Brooklyn Center, Minneapolis, St. Paul and Wadbury. Physician staffing is based upon specific clinic needs and qualified physicians receive an excellent hourly salary and paid malpractice.

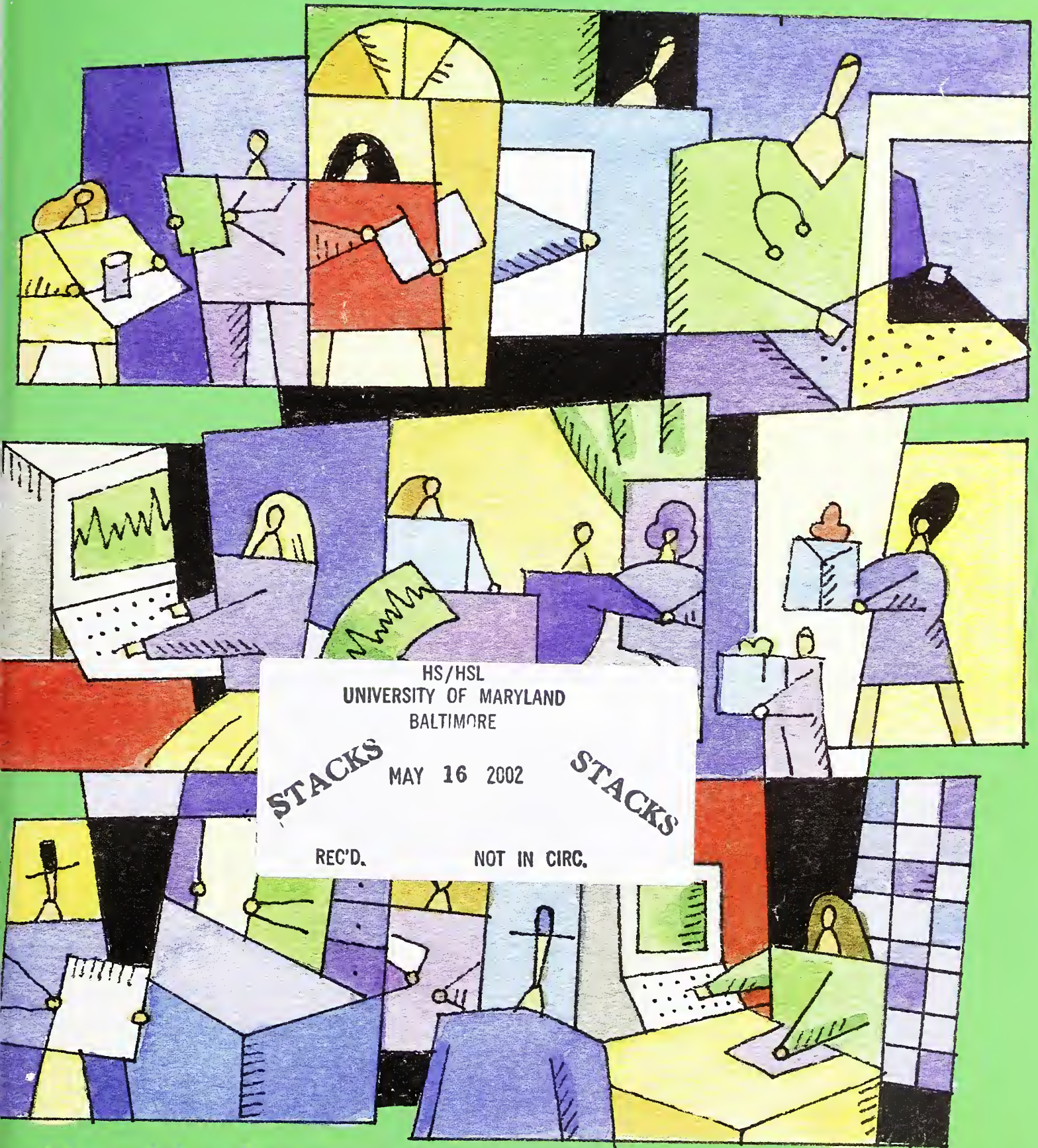
For more information on these positions, please call Diane Swenson at (612) 883-5453 or send/fax your CV to HealthPartners, Physician Services, 8100 34th Avenue South, P.O. Box 1309, Minneapolis, MN 55440-1309, FAX: (612) 883-5395. You may also e-mail inquiries to: diane.m.swenson@healthpartners.com. EO/AA Employer.

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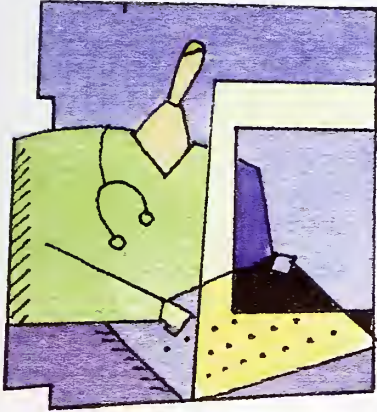
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Minnesota Medicine

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In an 1899 letter to JAMA, Philip Arnold, M.D., shared this communication pearl: "My plan usually is to leave a pigeon the day I make a visit and direct that the pigeon be liberated the next morning about

8 o'clock, with such a message as I may desire, e.g., the record of temperature, pulse, number of stools, etc."



"Like America, medicine is getting caught by the World Wide Web."

at health care delivery that try to fit government and insurance budgets. Medicine, scientific and economic, has not been standing still for the last two and a half years. But compared with the Internet, medicine has been trudging at terrapin speed. Medicine's advances are impressive; the Internet's are cosmic. That's why we're revisiting the Internet this month.

A sampling of quirky but revealing statistics published regularly on The Internet Index tells the metamorphic story of the Internet. The July 1996 Index estimated the 1995 volume of Internet sales at \$436 million. The February 1999 Index reported that the volume of online retail sales during the 1998 holiday season alone was \$8.2 billion (the 1999 annual projection is \$30 billion to \$40 billion). Eighty-two percent of Web users consider Web access "indispensable" (in fact, 67 percent of people in a *PC Magazine* survey said they would take their Web-connected computer to a deserted island; only 23 percent wanted their telephone). By April 1998, 320 million Web pages existed. The Internet is big and getting bigger. It is important to people and getting more important.

And the Internet's character is changing. Since 1996, the Internet has become more of a mall. It has become more of a

telephone. It has become a better, though still defective, library and encyclopedia.

Medicine has not ignored the Internet. As documented in our stories this month, doctors are getting into the Web business; doctors are getting business from the Web; doctors are doing their business with patients on the Web; and patients are getting more and more medical information from businesses on the Web. Like America, medicine is getting caught in the World Wide Web—but gradually.

Indeed, few doctors currently would call the Internet "indispensable." Most M.D. e-mail is still to distant friends or kids in college. Although the percentage of doctors with computers is higher than the national average, most M.D.s use the Web recreationally rather than professionally. Many physicians still find it easier to use a friendly medical librarian to do their literature searching. Doctors are plugged in but not turned on.

I think this will change. Navigating the Internet will get easier. Avoiding the Internet will get harder. And, as the medical records and medical information necessary to the daily life of a practicing physician become universally digital, the computer will become as constant a companion as an internist's stethoscope or a surgeon's scalpel.

In my November 1996 column, I said that physicians' approach to the Internet was timid. In April 1999, docs are getting bolder. I said that in the near future doctors would be talking to colleagues and patients via the Internet. This month's articles confirm that is happening. And I said that the Internet would be a major purveyor of medicine's words to patients, others in medicine, and the world. Although not yet "major," that purveyance is working today, certainly better than Dr. Arnold's homing pigeons.

—Charles R. Meyer, M.D., Editor-in-Chief

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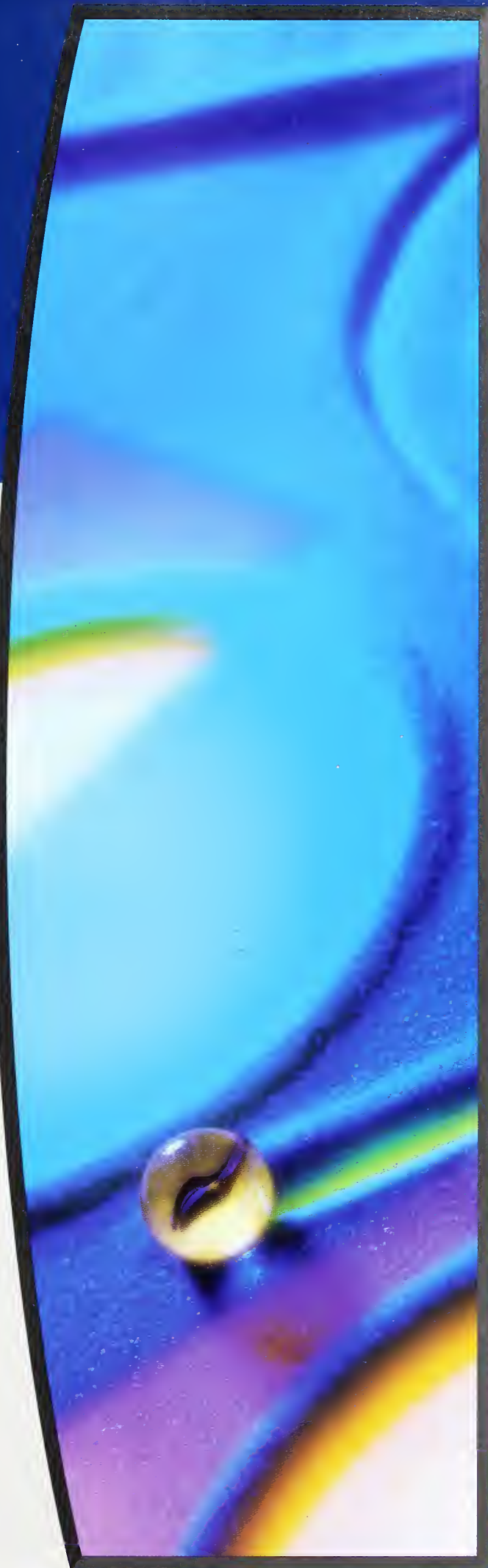
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Corrections

Our apologies to Matt McGue, Ph.D, whose name we misspelled in the March feature story "Uniquely Twins."

Authors Marc Weber, B.S., and Barbara Elliott, Ph.D., wish to add this statement to their February special report "Domestic Violence in Gay Male Relationships": "We wish to thank Kate Beattie for her computer and statistical assistance in the analysis of data for this project."



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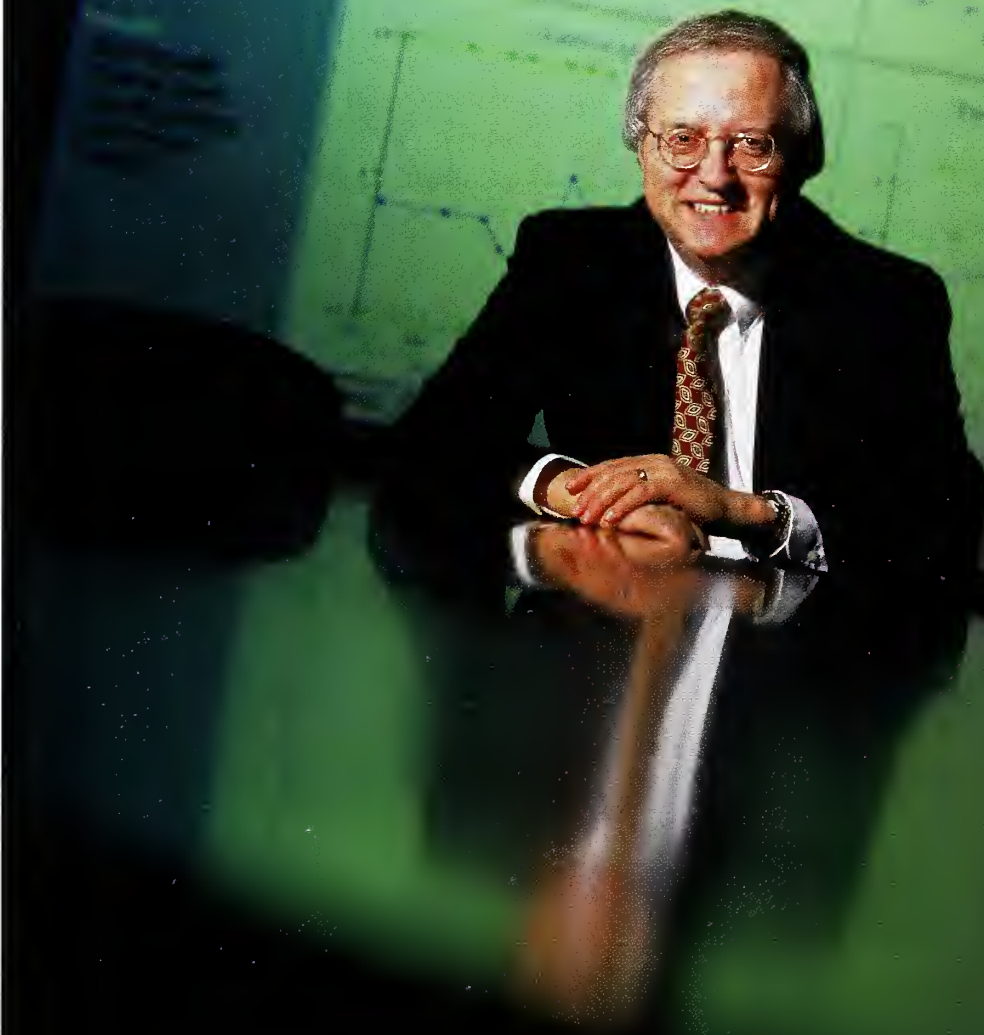
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Making Computers Physician-Friendly



PHOTOGRAPH BY JOHN NOLTNER

BY ANNE WELSBACHER

Donald P. Connelly, M.D., Ph.D., dismisses the popular notion that physicians are computer-phobic. The problem is not the docs, he says, but the computers—and he's working on changing that.

Early in his career, Donald P. Connelly, M.D., Ph.D., had what he calls “an epiphany of sorts.” When he was an intern at the University of Minnesota Hospital, his very first patient had a rare syndrome—and a chart that was a foot high. “I started thinking that the physician’s problem isn’t a lack of information,” he says. “It’s a plethora [of] information that is not available in a useful fashion. As an obsessive-compulsive medicine intern, I went through that whole file, but I recognized that when taking care of patients on a day-to-day basis, docs could really make use of information proficiency tools.”

Today, Connelly is professor of laboratory medicine and pathology at the University of Minnesota Medical School, professor of medical informatics at the university, and the director of clinical applications design for a medical software company called Abaton.com, based in Bloomington, Minnesota. He earned one of the first master’s degrees at North Dakota State University that was focused on bioengineering, and he is a pioneer in exploring and developing computer systems in clinical settings.

Connelly’s goal is to develop the “information proficiency tools” he lacked in his hospital intern days. Good tools, he asserts, will make his colleagues’ lives easier and their care more effective, and they will help achieve bottom-line goals for cost-conscious health care systems. His company’s software—a series of systems that includes ClinChart.com™, ClinLabs.com™, ClinRx.com™, and ClinWorkflow.com™—is designed to simplify the process by which physicians access and manipulate information about individual patients. Connelly is one of the system’s clinical designers, along with two of his former students, family physicians Robert Elson, M.D., M.S., and John Faughnan, M.D., M.S. A fourth physician, Abaton.com vice president Keith Willard, M.D., M.S., is the principal technical architect of the system. Their software can prescribe medicine and note potential drug interactions, handle administrative work between physicians and labs or

pharmacies, order tests and retrieve results, store medical histories, generate carry-home information for patients, perform repetitive administrative tasks, and transcribe voice input into written documents. The system eliminates redundancies and facilitates the workflow of common clinical tasks, translating to cost savings and error reduction.

But its real attractions are its point-of-care capabilities and its accessibility from any place at any time. A physician can refer to relevant clinical information while meeting with patients. A doctor working at home can view reports from any part of an integrated health system—nobody has to run upstairs or call the clinic across town to get the files from the lab or a referring physician’s office. And it doesn’t matter what kind of computer the physician has. Using standard Web browsers, the program can deliver clinical information to PCs, the Macintosh, and soon, the Palm Pilot.

Perception vs. Reality

Connelly says that his 20 years of clinical informatics research at the university have been devoted to learning how to build clinical information systems that doctors would “choose to use, not refuse to use.” Aside from this small poetic indulgence, as a proponent of information technology, he is soft-spoken and strictly pragmatic. He says any resistance on the part of physicians to use medical applications software is justified by a “long history of more promise than punch.”

The reason that only about 5 percent of physicians use computers in patient care work, he says, is because few doctors have found computers sufficiently useful. “Their costs, especially in terms of time, are seen to outweigh their benefits. Given that, what would any rational tool user conclude?”

Furthermore, he says, the popular notion of physicians as computer-phobes is a “bum rap.” “Physicians use computers in other areas of their lives,” he notes. “Our personal use is perhaps higher than average, but our use of them at work, in an informa-

tion-rich environment, is almost nil."

Connelly notes that Web browsers such as Microsoft Internet Explorer and Netscape Navigator make it easy for people of any generation or background to use computers. When browsers were installed in the physicians lounge at the University of Minnesota Hospital a few years ago, Connelly watched senior colleagues sit down and quickly start using the technology. "One of my colleagues who once told me, 'I've been practicing 30 years, I don't need a computer,' started right in on it," he says. "When I reminded him of our earlier conversation, he said, 'Well, this looks just like the system my grandson showed me. It was really easy to use.'"

Connelly is also sympathetic to health care administrators who are leery of clinical computer systems. "They make decisions based on history, and the history of clinical systems is checkered at best," he says. "We've got to demonstrate that a system brings value, that clinical users can be happy with it. Once that is established, the administrator's decision will be a safer decision, and thus an easier one."

Connelly says information security is a very legitimate concern, but adds that technology is available now to quell even the most conservative fears. "The banking industry, which is not only concerned about security but is committed to achieving it, is moving rapidly into Internet-based communications," he says. "The federal government is now concerned that technology may be *too* secure and puts limits on data confidentiality technology that is to be sent out of the United States."

The early performance of Abaton.com supports Connelly's optimism about the value of computer technology to physicians. Abaton.com was founded in January 1997 by a group of people with clinical, managed care, business, and information technology expertise. Its first customer, Allina Health System, has been posting lab results and orders on its intranet since February 1998. Norton Healthcare in Louisville is Abaton.com's second customer, and Fairview Health Services is in the late stages of pilot testing before general rollout to its University and Riverside campuses. The Abaton.com sales force has also generated interest in its products in most other regions of the country.

Looking Forward

In the not-too-distant future, Connelly believes, computers will be genuinely useful in day-to-day clinical settings. "We've got to both raise the value of what is delivered to doctors but also lower the barriers to clinical use," he says. "The issue of log-in sounds simple. But it's one more barrier that a computer can create. It's one more example of work you have to do for the computer rather than the computer doing work for you." Suppose instead that a physician going

from exam room to exam room could simply sit in front of a computer, be recognized by the computer, and promptly be shown the patient's electronic chart with reports of recent tests, medica-

tion history, or consultation reports with just a simple mouse click.

Connelly notes that at least one company is working on a log-in tool that would perform face recognition. And fingerprint-recognition software is already being tested in some health care settings. "We're not talking about five years from now to do fingerprint and facial recognition," Connelly says. "This is in the imminent future."

Working at Home

Connelly frequently mentions his home computer, reflecting his interest in spending time at home. With three children and three grandchildren, he says family has always been important to him. "But as you get older, you realize it's even more important than you thought," he adds. A daughter, son, and son-in-law have followed him into the medical field.

It might be hard for anyone to follow exactly in Connelly's footsteps, however, given the number of roles he performs. Presently, he spends most of his time working with Abaton.com and about 20 percent at the university, speaking at conferences and "publishing an article here and there."

"The private sector has allowed me to do more creative activities than we had the resources to do at the U. This is also translating to better training opportunities for physicians in the university's medical informatics program," Connelly says. "And," he adds, "time goes by fast when you're having fun." MM

Anne Welsbacher writes about health, science, and the arts. She lives in Minneapolis.

Few physicians use computers in patient care because few doctors have found computers sufficiently useful.



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How I Learned
to **Stop**
Worrying
and
Love the
Millennium Bug



CARTOON BY THOMAS PAYNE

*The Y2K crisis serves as a comforting reminder
of the limits of human reason.*

The natural first reaction to the Y2K crisis threatening the world's computers is anger: How could they have been so stupid? Next comes fear, as a simple syllogism dawns: This problem is unimaginably tedious to fix (how would you like to scroll through billions of lines of code to find and tweak dates?); for this reason, no amount of well-intended review can possibly catch everything; therefore, the trouble won't be cured, at least not completely. So forget about using 1999 to make sure the planet is "ready." We won't be.

The only question is whether the result is inconvenience or calamity. Nobody knows, of course, and those who pretend to know have a stake in the viewpoint they're peddling (alarmist computer consultants want higher fees; soothing public officials want calmer voters). The conventional wisdom among deep thinkers, however, is that whatever happens, this is all very grim. Look how vulnerable we are when computers run the world!

While there's something to this hand-wringing, it misses a larger point. Viewed properly, Y2K is not cause for angst but for rejoicing. On a spiritual level, in fact, the whole mess is very comforting.

That's because Y2K reveals an essential truth: No matter how ingenious we think we've become, the limits of human reason endure. Thirty years ago, some whiz kids decided to save then-costly computer memory by dropping the first two digits from dates—and now planes may fall from the sky while cities plunge back to the days before lights and running water. And Bill Clinton thinks *he's* facing disproportionate punishment? How can such outsized results from such trivial errors be anything but a cosmic reminder that we humans will never get it right?

"Everything I think is mocked by everything I do." So admits the pompous soldier in George Bernard Shaw's "Arms and the Man," and it's the

perfect theme for this moment. Y2K pops up to mock us just as we felt man's applied rationality had begun to conquer risk. Firms hedge against financial risk with complex derivatives. Families insure against accident and fires and theft. We plunk baby in the safest car seat, load autos with the latest air bags, and quit smoking, drinking, and anything else science tells us is too pleasant to do any good. And then what? Some air bags kill people they're meant to save. Some nonsmoker gets hit by a bus while a smoker puffs his way to age 100. A marathoner drops dead of a coronary.

For all our "progress," in other words, we'll never tame or banish risk—we can't wish or price or exercise or compute it away. And if we could, we'd ultimately regret it, for much the same reason that life seems precious precisely because we know at the end we die. Risk, and the fear it brings, is our eternal fate: Embrac-

ing it affirms our humanity.

On Y2K, this suggests a different perspective. Instead of lamenting, "Look how vulnerable we are when computers rule the world," why not ask with wonder: "Look how vulnerable we are *even when* computers rule the world! All this bounty of reason and intellect accumulated over the centuries, and we're still not *safe!*"

Yes, Y2K is scary. But so is marriage. And having children. And every other task to which we set our rational little minds, knowing in our hearts that we're doomed to irrational, unpredictable losses. Y2K proves once more that technology can't transcend this inevitable anguish and mystery; it merely reshuffles it. As the millennium nears, there's something poetic in the fact that it takes our machines to remind us that we're only human. MM

Matthew Miller is a writer for the Los Angeles Times Syndicate.

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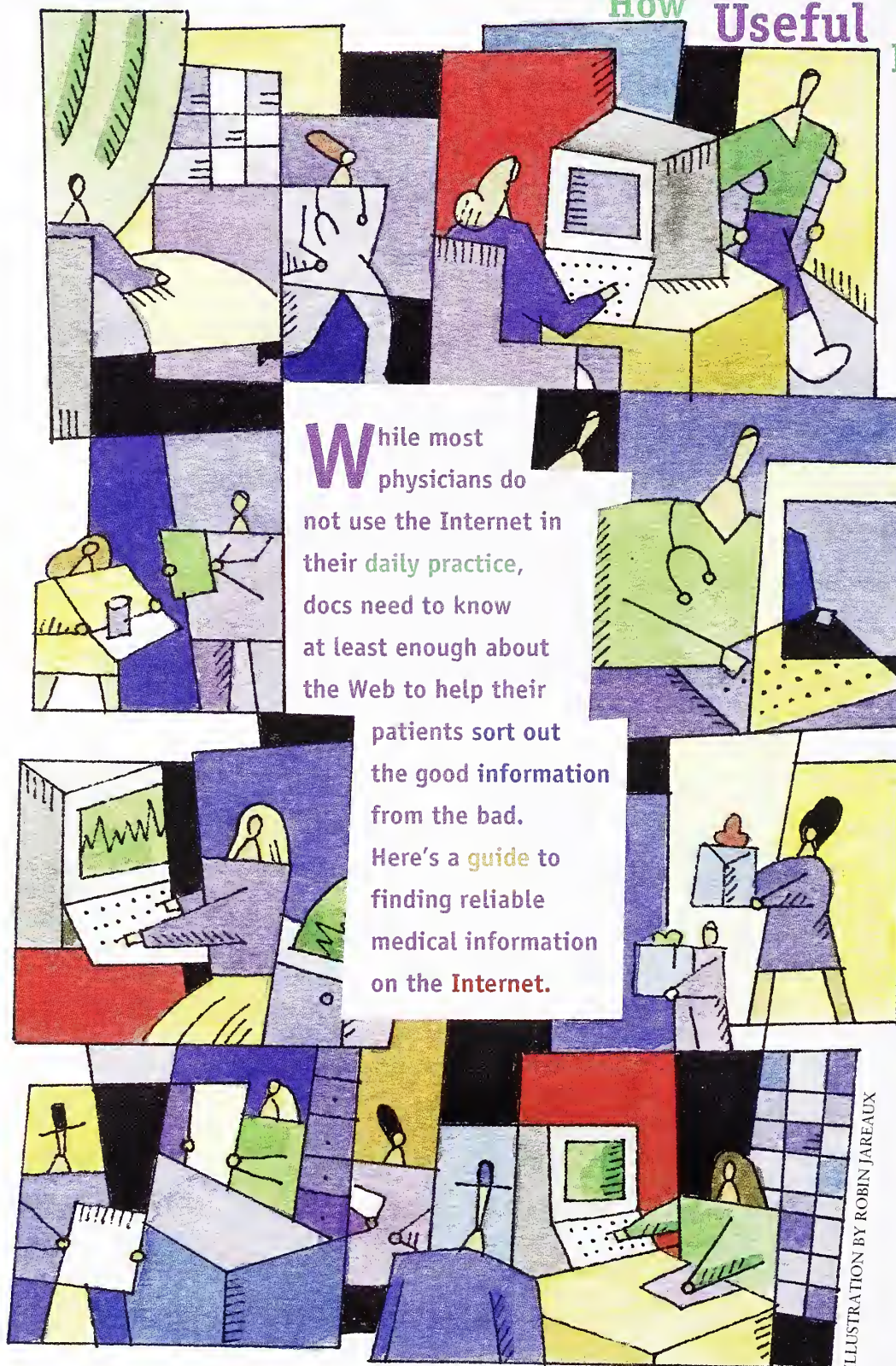
*"No matter how
ingenious we think
we've become,
the limits of human
reason endure."*

By Matthew Miller



Medicine Online

How Useful
Is It?



While most physicians do not use the Internet in their daily practice, docs need to know at least enough about the Web to help their

patients sort out the good information from the bad. Here's a guide to finding reliable medical information on the Internet.

ILLUSTRATION BY ROBIN JAREAUX

By Howard Bell

A third party sits in the exam room with Paul Kleeberg, M.D., and his patient—and it's not the insurance company. It's the Internet. Kleeberg's patient has mononucleosis, and she wants to know more. Kleeberg reaches for the mouse, clicks onto the American Academy of Family Physicians Web site, and prints out facts on mono. "What I can get on the Net is often more current than what we have in the office," the Allina family practitioner says. "It's less expensive than maintaining a rack of printed brochures, and when you print the pages on a color printer, they look a lot better than those decayed photocopies of photocopies."

Kleeberg is an exception. Most physicians do not use the Internet in their daily practice, except for e-mail. For most workaday docs with a patient every 15 minutes and a stack of dictations waiting, the Internet is more novelty than necessity, according to William Hersh, M.D., who studies physician use of the Internet in his role as chief of medical informatics at Oregon Health Sciences University in Portland. "Most physicians make meager use of Internet medical sites," says Hersh. "There's good stuff out there, but not much practical day-to-day use of it by physicians."

For that to change, Hersh and Kleeberg agree, the Internet must be faster and more convenient. Kleeberg, an admitted "searchaholic and Web site grazer," says he probably wouldn't use the Internet nearly as much if he weren't part of Allina's information services team, equipped with a fast Internet connection that's always up and an exceptionally good search engine. "Physicians are interested in using the Internet in their practice," says Kleeberg. "But most do not even have browsers on their computers. Or if they do, they don't have fast connections at their desks or in exam rooms. We're not there yet."

Clinical E-commerce

Yet is the operative word. In three to five years, electronic medical records will usher in a new online

world, according to Bob Elson, M.D., a former Stillwater family practitioner now with Abaton.com in Minneapolis. Elson and his Abaton.com colleagues (see related article, page 6) design software tools, activated by Web browsers, that let physicians communicate by private intranet with patients, insurance companies, labs, pharmacies, and other ancillary services. "Searching the Web for information is fine," Elson says, "but clinical e-commerce is where the action will be."

Doctors will use browsers like Microsoft Internet

Explorer or Netscape Navigator to log onto data servers at places like Abaton.com. These data servers will contain everything you ever wanted to know about the managed care organizations and third-party payers you do business with. A physician in Two Harbors, for example, will be able to attach an x-ray that is stored in the Abbott Northwestern radiology server in Minneapolis to the patient's electronic record, located on a server at St. Luke's Hospital in Duluth. Unsure which therapeutic path to take for a particular patient? You can click from the patient's medical record to evidence-based guidelines. Then look up the patient's insurance formulary, authorize a prescription, and print out information for the patient.

The new technology subtly encourages physicians to play by managed care cost-containment rules, according to Elson.

And it will reduce how much time physicians spend on paperwork and phone calls. "It will result in tremendous cost savings and efficiencies," he says.

"Once one of Minnesota's 'big three' [health systems] develops Web-based delivery of patient services," Elson continues, "there's going to be a frenzy as the others try to catch up, much the way Barnes & Noble had to catch up with Amazon.com. You don't need to be a visionary to see the future."

Finding the Good Stuff

For now, physicians clip-clop along using the Internet for e-mail and stock quotes more than anything else.

What I can get on the Net is often more current than what we have in the office. It's less expensive than maintaining a rack of printed brochures, and when you print the pages on a color printer, they look a lot better than those decayed photocopies of photocopies.

—Paul Kleeberg, M.D.

But connections are getting faster, says Robert Sikorski, M.D., Ph.D., a Boston oncologist on leave from his practice to design software that makes it easier to use the Internet in patient care. Sikorski also teaches an AMA-sponsored workshop called "Physician Access to the Internet."

"Internet access via cable modem, already available in many cities, is 50 times faster than standard 33.6 modems," Sikorski says. "Satellite connections offered by the same companies that sell entertainment satellite dishes are 25 times faster."

But speed doesn't help much if you don't know where you're going. Since so much information is out there, it needs to be filtered and "predigested," Sikorski believes. "Early efforts are underway to predigest clinical information on the Internet from

an evidence-based perspective," he says, "so busy physicians don't have to do such time-consuming searches."

Medline is still the main source for literature searches. Medline's PubMed database searcher makes it easy to navigate, according to Kleeberg. PubMed's clinical search filters let you refine your search for articles by therapy, diagnosis, etiology, or prognosis.

One way to save search time is to start at one of the medical supersites, which offer prefiltered links to useful sites. Think of medical supersites as visitor centers along the information superhighway, designed specifically for physicians. Some are free. Some charge a membership fee. Most contain information for patients as well as physicians. Until now, they were considered "professional novelties,"

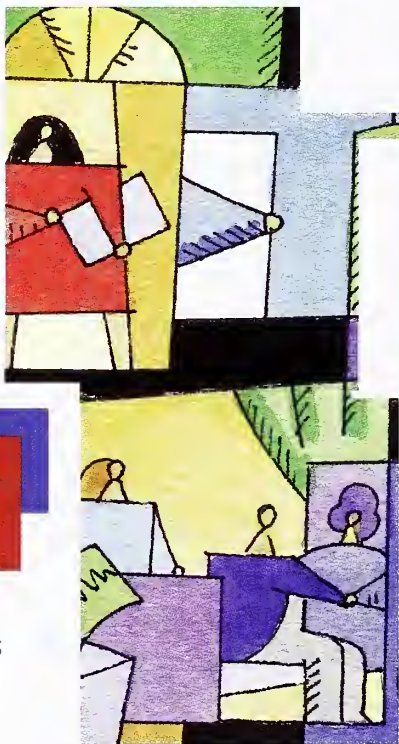
BOOK REVIEW

The Telegraph: Yesterday's 'Internet'

"The Victorian Internet:
The Remarkable Story of the
Telegraph and the 19th Century's
On-line Pioneers" by Tom Standage
reveals parallels between
communication technology
then and now.

Reviewed by **Charles R. Meyer, M.D.**

Imagine a revolution in communications that connects the world as never before, boosting commerce, spawning romances, inspiring code-breaking crooks, and mothballing previous forms of human interaction. A pocket description of the Internet, right? Maybe, but it's also an accurate portrayal of the telegraph. The historical parallels between the Internet and the telegraph pile up in "The Victorian



Internet: The Remarkable Story of the Telegraph and the 19th Century's On-line Pioneers" (Walker and Co., 1998) by Tom Standage.

Fifty years before Samuel F.B. Morse tapped out "What hath God wrought," telegraph towers with gangling arms used for optical signaling dotted the French countryside. Their inventor, Claude Chappe, coined the word "telegraph" from the Greek words meaning "far writing."

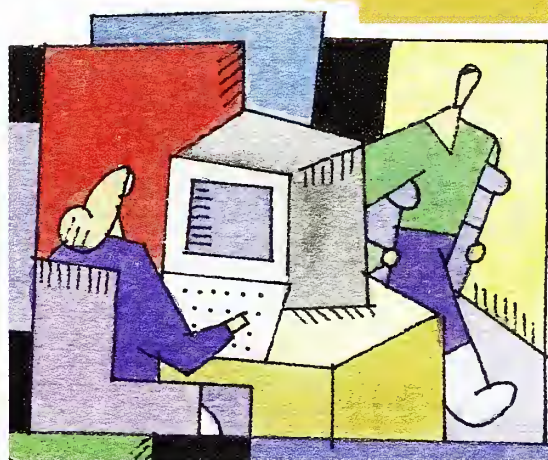
The distance and speed of optical signaling was quickly eclipsed, however, when Morse found a way to capture changes in electrical current on the receiving end of a wire. The ensuing explosion of telegraph lines rivaled the recent growth of the Internet; Morse's original, lone 40-mile line from Washington, D.C., to Baltimore mushroomed in five years to 12,000 miles throughout the United States by 1850. Like MCI laying fiber-optic cable to facilitate increased Internet

according to Healthcare Computing Publications, which analyzes and ranks such sites. But some of them are starting to put more meat in their content.

Medical Matrix <www.medmatrix.org> is a well-organized, free catalog of medical Web sites, reviewed by physicians and rated by a star system. Matrix is organized by clinical specialty and includes journals, textbooks, patient education, news, and links to other sites.

Two popular supersites are Doctor's Guide to the Internet <www.pslgroup.com> and Medscape <www.medscape.com>. A kind of virtual doctors lounge, they offer discussion groups, journal searches, a medical library, a

bookstore, medical news, access to Medline, online coverage of medical conferences, practice guidelines, a job page, and a CME calendar. You can even receive e-mail and purchase pharmaceuticals and stocks.



volume, companies vied to complete the transatlantic cable that would join North America and Europe by telegraph.

Standage peppers his account with vignettes of people puzzling over, coping with, and exploiting the new technology. A Nebraska man patiently watched the telegraph wires, hoping to catch a messenger tight-rope along the wires. Marriage ceremonies were conducted in dots and dashes. And Thomas Edison catapulted to fame and fortune on the strength of his innovation and uncanny telegraphy skills.

Telegraphy killed previous communication "technologies." The legendary Pony Express lasted a mere 19 months, put out to pasture by transcontinental telegraph wires. Telegraphy suffered the same fate 31 years after its invention, when Alexander Graham Bell spoke to Watson.

Moral: The present is quickly past. Any technology's dominance is like Warhol's fame—a 15-minute flash in a millennium of human ingenuity.

Avoid Web Wandering

■ Web search sites can be divided into two categories: directories and search engines.

■ Directories yield a smaller, but more focused number of hits.

■ Search engines are best when gathering a broad base of material.

■ Metasearch engines search multiple search sites, consolidating the results on a single page.

■ Medical search engines are best when seeking documents from medical literature such as journals, textbooks, or patient handouts.

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Sikorski's Boston-based company, Medsite Communications, created the Medsite navigator <www.mednav.com>. "I think of it as the Yahoo of Medicine," he says. "Our goal is to give physicians easy access to all the good stuff." Medsite is a launch pad or portal that links to journal search sites, medical newsgroups, CME listings, treatment guidelines, and other sites Sikorski has found reputable.

Most general medical journals and some specialty journals offer full text to subscribers on their Websites. That's not to say online reading will replace good old hard copy. "It's just faster to access journal [articles] online, print them out, and read them at your leisure," says Sikorski. And it beats going to the library and rummaging through the stacks, especially when a medical librarian isn't available to help you. Online versions of references like the *Merck Manual* can save time, too, and they will be up-to-date.

"Sometimes it's nice to grab a book," says Sikorski, "but books don't contain the latest drug information and clinical pathways."

Many medical specialty societies post their latest treatment guidelines for various diagnoses. Medline indexes practice guidelines, and you can also search for them via Medical Matrix. Government and specialty medical societies are some of the best medical stops on the Web to get information about new drugs, drug interactions, and clinical trials, as well as the latest drug and treatment guidelines, according to Sikorski.

"NIH, NCI, HHS, and AMA are all good," he says.

So many clinical practice guidelines are now online that the National Guideline Clearinghouse (NGC) has compiled them in one Web site <www.guideline.gov>. NGC includes all guidelines that have met strict criteria for inclusion, in full text, with comparisons of guidelines for the same diagnoses. Government and medical specialty society Web sites also post outcomes-based and evidence-based guidelines.

The Internet also provides a quick and current source for "deep facts" about specific medical technologies. Pacemaker manufacturers, for example, post on their Websites specifications physicians need to know for modules and embedded software. "They used to mail that stuff to you in a letter," says Sikorski. "Now it's on the Net."

What the Internet is not so good for, Sikorski notes, is the very thing some physicians use it for most—researching uncommon or difficult diagnoses. "It doesn't work well for that," he says. "It works best when you know what's wrong with the patient and want more facts."

Brooks Edwards, M.D., a Mayo cardiologist, visits journal sites and searches Medline when a patient is not responding to therapy. "I search articles and clinical trials to make sure I have the latest information. But most of what physicians see is routine, so you don't need to search for answers."

Medical Sites Are Web Favorites

According to a poll by Louis Harris & Associates, in the last 12 months, 60 million people sought disease-specific information on the World Wide Web. In a survey of 2,000 adults, respondents said the sites they referenced most often were those of medical societies (40 percent), patient advocacy or support groups (32 percent), pharmaceutical companies (20 percent), and hospitals (16 percent). (The pollsters noted, however, that respondents may have been confused about which Internet site they were on because of links between Web pages.) The diseases that generated the most online research included depression (19 percent), allergies or sinus conditions (16 percent), cancer (15 percent), bipolar disorder (14 percent), arthritis or rheumatism (10 percent), high blood pressure (10 percent), migraines (9 percent), anxiety (9 percent), heart disease (8 percent), and sleep disorders (8 percent).

Jobs and CME

The Internet also gives physicians new ways of finding jobs and CME offerings. The medical supersites post both classified ads and CME, and most physician

recruitment agencies have their own Web sites. Some sites show pictures of medical centers and communities where jobs are available.

To find CME listings, start with your specialty society's Web site. The MMA, for example, has links to specialty societies at its Web site <www.mnmed.org/siteindex.html>. Or try the AMA's On-line CME Locator <www.ama-assn.org/ethic/educat.htm>. The Liaison Committee on Medical Education <www.lcme.org/> lists all medical schools offering accredited medical education programs. Go to the school of your choice and click on its CME page.

It's even possible to complete CME courses online, but this use of the Internet hasn't caught on yet. Only about 1 percent to 3 percent of CME is completed using course materials transmitted via computer. Medscape is probably the largest provider of online CME. These courses can save you time, because you can complete them in your office or at home in your PJs. But, as Kleeberg says, "I still like to go somewhere for CME and immerse myself."

Playing Doctor

When William Hersh asks a roomful of physicians if their patients bring in health information they got on the Internet, every hand goes up. Physicians need to be Internet-savvy, if for no other reason than to help their patients separate the good from the bad. Forty percent of all Internet searches are done to find medical information, a *USA Today* survey found. Consumer health information and patient education are the most rapidly expanding parts of the Web, according to the National Council for Reliable Health Care Information. "Doctors should not feel threatened by this," says Edwards, who serves as medical editor for Mayo Clinic Health Oasis <www.mayohealth.org> (see related article on page 28). "Educated patients make better decisions about their health, and they're stronger partners in the patient-physician relationship." Edwards routinely gives patients printouts from Oasis and encourages people to visit the site on their own.



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• Pre-placement Evaluation	
• Advanced Medical Case Management	
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IMITREX is a prescription medicine created specifically for the acute treatment of migraine attacks in adults. You should not take IMITREX if you have certain types of heart or blood vessel disease, a history of stroke or TIAs, or uncontrolled blood pressure. Very rarely, certain people, even some without heart disease have had serious heart-related problems.

So talk to your doctor, especially if you have risk factors for heart disease, like smoking, diabetes, high blood pressure or high cholesterol; or if you're pregnant, nursing or taking medications.

1. Source: Physician Drug and Diagnosis Audit (PDDA), November 1996–October 1997, Scott-Levin, a Division of Scott-Levin, PMSI, Inc.

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visit our Web site: www.migrainehelp.com

Please see the important information on the following page.

Please read this summary of information about IMITREX before you talk to your doctor or start using IMITREX. No summary can take the place of a careful discussion between you and your doctor. Only your doctor has the medical training and the complete prescribing information necessary to determine if this medicine is right for you. Once you read this summary, you should discuss with your doctor whether IMITREX is appropriate treatment for you and ask any questions you may have.

WHAT IS IMITREX?

IMITREX is the brand name of sumatriptan, a drug intended to relieve your migraine headaches but not to prevent or reduce the number of migraine headaches you experience. IMITREX should be used only to treat an actual migraine attack. IMITREX can be obtained only with a doctor's prescription and should be used by adults only after discussing the choice with your doctor, taking into account your individual preferences and medical circumstances.

HOW DOES IMITREX WORK?

How IMITREX works is not completely understood. IMITREX is a 5-HT₁ agonist that seems to relieve migraine headaches by acting like a brain chemical called 5-hydroxytryptamine, causing some blood vessels in the head that are swollen during a migraine to constrict (that is, to become smaller), which helps relieve migraine headache.

IMPORTANT SAFETY CONSIDERATIONS

Although the vast majority of patients who have taken IMITREX have not experienced any significant side effects, some patients have experienced serious heart problems and, rarely, considering the extensiveness of IMITREX use worldwide, deaths have been reported. In all but a few instances, however, serious problems occurred in patients with known heart disease, and it was not clear whether IMITREX was a contributing factor in these deaths.

Serious events relating to the blood vessels in the head (e.g., brain hemorrhage, stroke) have been reported in patients who were taking IMITREX. Some of these have resulted in death; however, the relationship of IMITREX to these events is uncertain. In a number of these cases it appears possible that patients were not experiencing a migraine but rather an event due to blood vessel disease in the head. IMITREX was given in the incorrect belief that the person may have been suffering a migraine. Therefore, you should not take IMITREX if the headache you are experiencing is different from your usual migraine attacks. People who suffer from migraines may be at increased risk of certain blood vessel events in the brain (e.g., hemorrhage, stroke, or transient ischemic attack).

Ask your doctor about these and additional safety considerations.

WHO SHOULD NOT TAKE IMITREX?

Some types of migraine headaches should not be treated with IMITREX, and some patients should not take IMITREX because of an increased risk of serious side effects.

■ If you have had a heart attack, stroke, transient ischemic attacks, peripheral vascular disease (including ischemic bowel disease or Raynaud's syndrome), or any sort of heart disease or symptoms that are associated with constriction of blood vessels, such as ischemic heart disease, angina, or coronary artery vasospasm, you should not use IMITREX.

■ If you have uncontrolled high blood pressure, you should not use IMITREX.

■ If you are taking certain drugs for depression, talk with your doctor. IMITREX should not be used if you take or have taken within the last 2 weeks, monoamine oxidase inhibitors (MAOIs).

■ Your doctor will discuss with you the type of migraine headaches you have. If you have hemiplegic or basilar migraine, you should not take IMITREX. IMITREX should be used only in patients who have been diagnosed by a physician as having migraine with or without aura.

■ Tell your doctor about any other medications you are taking. If you are currently taking any migraine medications that include ergot alkaloids, such as methysergide or dihydroergotamine, or other 5-HT₁ agonists, do not take IMITREX within 24 hours of taking these medications.

■ Do not take IMITREX if you are allergic to sumatriptan or any of the ingredients in IMITREX.

WHAT MEDICAL PROBLEMS OR CONDITIONS SHOULD I DISCUSS WITH MY DOCTOR?

■ If you have risk factors for heart problems, you should tell your doctor. Your doctor should examine you for heart disease to see whether IMITREX is appropriate for you. Risk factors include high blood pressure, high cholesterol, obesity, diabetes, and smoking. Other patients with risk factors for heart disease are women who are past menopause (whether natural menopause or menopause resulting from surgery), men over 40 years old, or patients with a family history of heart disease. If you have risk factors and your evaluation for heart disease is satisfactory, your doctor may ask you to take the first dose of IMITREX in the doctor's office.

■ Tell your doctor if you have chest pains, shortness of breath, or irregular heart beats.

■ Tell your doctor if you are taking selective serotonin reuptake inhibitors (SSRIs).

■ Tell your doctor if you have a history of epilepsy or seizures.

■ Tell your doctor if you have liver or kidney problems.

■ Tell your doctor if you have ever had to stop taking any medication because of an allergy or other problems.

USE OF IMITREX DURING PREGNANCY AND BREAST-FEEDING

Do not take IMITREX if you are pregnant, think you may be pregnant, are trying to become pregnant, are not using adequate birth control methods, or are breast-feeding, unless you have discussed this with your doctor.

HOW TO USE IMITREX TABLETS OR NASAL SPRAY

Tablets: For adults, the usual dose is a single tablet taken whole with fluids. A second tablet may be taken if your symptoms of migraine come back or if you have partial response to the first dose, but no sooner than 2 hours after taking the first tablet. For a given attack, if you have no response to the first tablet, do not take a second tablet without first consulting with your doctor. Do not take more than a total of 200 mg of IMITREX Tablets in any 24-hour period.

Nasal Spray: For adults, the usual dose is a single spray administered into one nostril. If your headache comes back, a second nasal spray may be administered anytime 2 hours after administering the first spray. For a given attack, if you have no response to the first nasal spray, do not take a second nasal spray without first consulting your doctor. Do not administer more than a total of 40 mg of IMITREX Nasal Spray in any 24-hour period. The effects of long-term repeated use of IMITREX Nasal Spray on the surface of the nose and throat have not been specifically studied.

The safety of treating an average of more than four headaches in a 30-day period has not been established.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF USING IMITREX?

Do not rely on this summary alone for information about side effects. Your doctor can discuss with you a more complete list of side effects that may be relevant to you.

The most frequently seen side effects are tingling and warm/cold sensations with IMITREX Tablets and bad/unusual taste with IMITREX Nasal Spray.

■ Some patients feel pain or tightness in the chest or throat when using IMITREX. If this happens to you, discuss it with your doctor before using any more IMITREX. If the pain is severe or does not go away, call your doctor immediately.

■ If you have sudden or severe abdominal pain after taking IMITREX, call your doctor immediately.

■ Shortness of breath; wheeziness; heart throbbing; swelling of the eyelids, face, or lips; or a skin rash, skin lumps, or hives happen rarely, but if they happen to you, tell your doctor immediately. Do not take any more IMITREX unless your doctor tells you to.

■ Some patients have feelings of tingling, heat, flushing (redness of the face lasting a short time), heaviness, or a feeling of pressure after taking IMITREX. A few patients may feel drowsy, dizzy, tired, sick, or experience nasal irritation (Nasal Spray only). Tell your doctor about these effects at your next visit.

■ If you feel unwell in any other way or have any problem that you do not understand after taking IMITREX, tell your doctor immediately.

WHAT SHOULD I DO IF I TAKE AN OVERDOSE?

If you have taken more medication than you have been told, contact either your doctor, a hospital emergency department, or the nearest poison control center immediately.

HOW SHOULD I STORE IMITREX?

Be sure to keep your medicine in an area that cannot be reached by children. It may be harmful to children.

IMITREX Tablets and IMITREX Nasal Spray should be stored at room temperature and do not require refrigeration. Do not store above 86° F (30° C) or below 36° F (2° C). Store away from heat and light. If your medication has expired (the expiration date is printed on the label) throw it away as instructed. If your doctor decides to stop your treatment with IMITREX, do not save any leftover medication unless your doctor tells you to do so. Throw it away as instructed.

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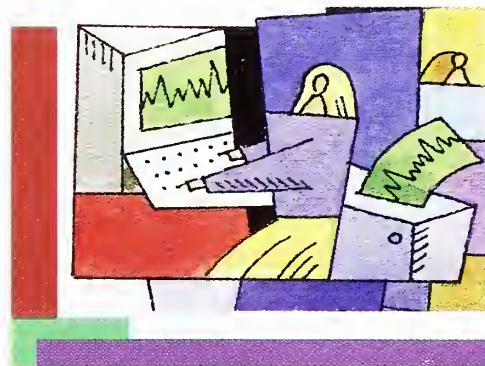
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July 1998

COVER STORY



The best bets for finding reliable patient information are sites sponsored by large medical centers, government agencies, and health organizations like the American Cancer Society and the American Heart Association, says Kleeberg.

Sites that advertise drugs and other products are OK as long as the content is not designed merely to reinforce the ads, according to Edwards. "People are used to seeing advertising in magazines and are capable of telling the difference," he says.

Many physician sites are helpful for patients, too. Medical Matrix, for example, has a patient information section. Medscape also has its own patient information section, as well as links to other patient sites. Kleeberg visits his specialty society Web site to get patient information.

Chat rooms, mailing lists, and newsgroups are suspect because they contain so much unregulated, unattributed information. Patients armed with bad advice they picked up from chat rooms and newsgroups have been known to self-medicate or pressure their physician for inappropriate therapies or tests. "The Internet is like a cocktail party," says Edwards. "There are several conversations going on at once. Some are informative. Others are garbage."

The Federal Trade Commission found more than 400 Web sites and numerous newsgroups with promotions for products and services claiming to help cure, treat, or prevent AIDS, arthritis, cancer, diabetes, heart disease, and multiple sclerosis.

The only widely recognized "Good Housekeeping seal of approval" for medical sites is the HON seal—Health on the Net. HON <www.hon.ch> is an international not-for-profit foundation based in Geneva, Switzerland. Its council of medical informatics specialists developed minimum standards for health Web site content. Sites that display the seal meet or exceed HON standards for content. On HON sites, only health professionals give advice; if nonprofessionals provide advice, the site must reference where the information came from. HON is a voluntary system, so not all the sites that would qualify have been certified, but it's catching on.

For now, the Internet is geared more toward patients than physicians. That will change with the coming of electronic medical records, faster connections, and new Web-based tools that give physicians practical ways to use the Internet in patient care. "One thing's for sure," Sikorski says. "Wherever you think the Net is now, it ain't gonna be there in a year."

MM

Howard Bell is a medical writer living in Onalaska, Wisconsin, and a frequent contributor to Minnesota Medicine.

Glossary and list of online resources, next page. ➔

Medicine Online Resources

Useful Bookmarks for Busy Physicians and Their Patients

Medical Supersites

AMA: www.ama-assn.org
 HealthGate: www.healthgate.com
 Johns Hopkins Welch Medical Library: <http://welchlink.welch.jhu.edu/internet/clinical.html>
 Medical Matrix Guide to Internet Clinical Medicine Resources:
www.medmatrix.org
 Medscape: www.medscape.com
 Medsite Navigator: www.mednav.com
 Physician's Home Page: <http://php.silverplatter.com>
 Physicians' Online: www.po.com
 Reutershealth: www.reutershealth.com
 WebMd Consult: www.mdconsult.com

Clinical Information Search Sites

Medline Guide to Internet Clinical Resources: www.ncbi.nlm.nih.gov/pubmed/
 National Guideline Clearinghouse: www.guideline.gov
 Yahoo Index for Medicine: www.yahoo.com/Health/Medicine/

Clinical Information for Patients

Healthfinder: www.healthfinder.org
 Mayo Clinic Health Oasis: www.mayohealth.org
 NIH dietary supplements: <http://dietary-supplements.info.nih.gov>
 Support Group Finder: www.cmhc.com/selfhelp

Government Sites

Agency for Healthcare Policy & Research: www.ahrp.gov
 Centers for Disease Control and Prevention: www.cdc.gov
 Food and Drug Administration: www.fda.gov/default.htm
 Health & Human Services: www.os.dhhs.gov
 National Cancer Institute: www.nci.nih.gov
 National Institutes of Health: www.nih.gov

CME Sites

AMA's On-line CME Locator: www.ama-assn.org/ethic/iwcf/iwcfmgr206/cme
 American College of Physicians: www.acponline.org/index.html
 Liaison Committee on Medical Education: www.lcme.org/
 Minnesota Medical Association: www.mnmed.org

Newsgroups & Listserv Sites

Deja News—search all Internet newsgroups: www.dejanews.com/
 Liszt: www.liszt.com
 Reference.com—searchable database for newsgroups and mailing lists:
www.reference.com
 Tile.Net/News—list of newsgroups dealing with medical topics: <http://tile.net/news/>

Glossary

Bookmark—A list of a user's favorite home pages kept by browser software programs and used for quick return to favorite sites.

Browser—A software program, such as Netscape Navigator or Microsoft Internet Explorer, used to communicate with servers, access Web documents, and follow hyperlinks to other documents.

Cable modem—A modem that relies on fiber-optic cable rather than telephone lines to transmit data.

Chat rooms—Web sites where people can send messages that create an online, real-time discussion.

E-commerce—Business conducted over the Internet or by private intranet; buying and selling goods directly from a Web site, for example, or financial and other transactions between physicians and managed care organizations.

Home page—The first page of a Web site.

Intranet—A private Internet within a company or group of companies.

Mailing lists—Electronic discussion groups in which every member of the list receives every message posted to the group. Also called "lists" or "listservs."

Navigator—See *Search engine*.

Newsgroups—Electronic forums on a wide range of subjects. Messages are posted on the site and members can respond.

Search engine—A software program employing a variety of strategies to locate Web sites.

Server—A computer that stores files for use by other workstations.

Supersite—A Web site that serves as a starting point for access to a large number of related sites within a particular field, such as medicine.

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Planning*

*Motor
Services*

*Education
Programs*

*Other MMBR
Services*



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- ◆ Request competitive quotes for employee benefit plans.
- ◆ Shop and compare the best term life insurance rates.
- ◆ Find competitive workers comp and commercial insurance programs.
- ◆ Shop for autos, SUVs and vans for purchase or lease.
- ◆ Save up to 75% off frequently ordered office products.
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The E-Mail Connection

E-mail offers advantages for doctor-patient communication, but it has also created new questions about protocol.

Last October, a Boston doctor used electronic mail (e-mail) to tell a Russian sailor thousands of miles away how to operate on himself, probably saving the sailor's arm and possibly his life. Daniel Carlin, M.D., an infectious disease specialist at the New England Medical Center, was on call for the Around the World Alone Race for solo yachtsmen when he received an e-mail from Viktor Yazykov.

"My right elbow does not look good. Some yellow spot in the middle of red and it feels dead," Yazykov wrote. "Waiting for your help." The next morning, when his solar-powered e-mail was back up, Yazykov wrote: "All skin is glossy and shiny white. It is like a pillow with some liquid inside."

Carlin knew Yazykov had an abscess that could burst under the skin and unleash a potentially fatal infection. Using e-mail, Carlin dispatched 13 steps for cutting into and draining the abscess. Yazykov's arm improved, and the sailor completed the around-the-world race, arriving safely in Cape Town, South Africa.

"In terms of administering medicine by remote control, this one has got to be right up there as one to remember," Carlin told the *Boston Globe*.

By Ralph C. Heussner Jr.

The story is dramatic but atypical. Although e-mail between patients and physicians is increasing with the explosion of Internet users, most communiqués are routine requests for appointments, prescription refills, lab test results, or general information concerning symptoms.

In fact, the average e-mail exchange between a patient and doctor might go like this:

Patient to doctor: Happy New Year, Doctor. My wife and I are going on a scuba-diving trip in March. We plan to do some heavy-duty dives, so I would like to get a clean bill of health from you before we leave.

exceed the recreational diving limit of 120 feet, but we may go deeper.

A New Era

Although e-mail doesn't yet rival the telephone as the primary medium for remote doctor-patient interactions, its use is growing. In 1997, an estimated 15 percent of the U.S. population—50 million people—used e-mail. By the year 2000, that number is expected to double.

However, the medical profession has not entirely



ILLUSTRATION BY ROBIN JAREAUX

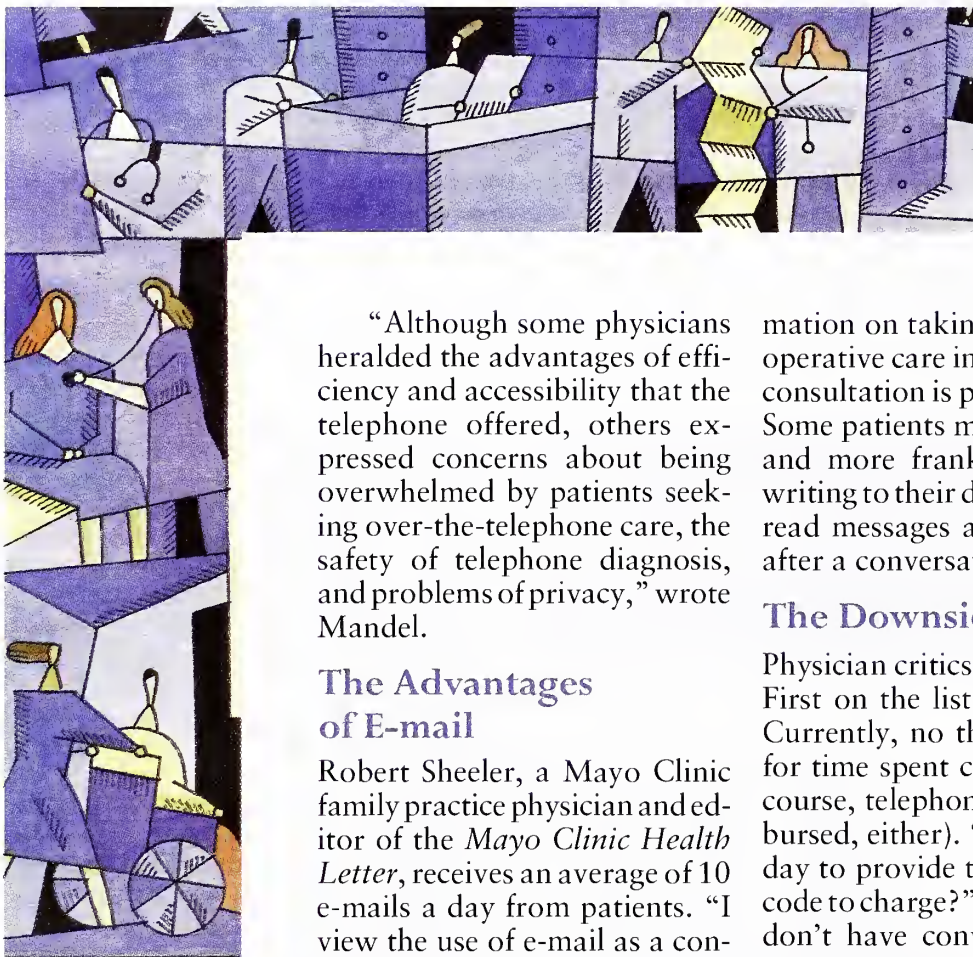
I think a short office visit would suffice, but I will leave that up to you. Would you please have your appointment secretary schedule a visit? Thanks.

Doctor to patient: Will do. Sounds fun. How low will you go?

Doctor to secretary: Will you please put (patient's name) on for a limited exam in late February? Thanks.

Patient to doctor: Thank you. We don't plan to

embraced e-mail for patient communication. Just 1 percent to 2 percent of physicians offer patients this service, according to a 1996 survey. This reluctance to adopt e-mail in patient care in the late 20th century can be compared to initial misgivings about the use of the telephone in patient care, says Kenneth Mandel, M.D., of Children's Hospital in Boston, in an article in the *Annals of Internal Medicine*.¹



"Although some physicians heralded the advantages of efficiency and accessibility that the telephone offered, others expressed concerns about being overwhelmed by patients seeking over-the-telephone care, the safety of telephone diagnosis, and problems of privacy," wrote Mandel.

The Advantages of E-mail

Robert Sheeler, a Mayo Clinic family practice physician and editor of the *Mayo Clinic Health Letter*, receives an average of 10 e-mails a day from patients. "I view the use of e-mail as a convenience and a service to my patients," Sheeler says. "In many

cases, e-mail saves time and improves communication." He keeps his computer on during the day, answering messages between patient visits and during his lunch hour. Communication, he says, is "part of the total panorama of care."

Physician advocates of e-mail attest to its many advantages, such as avoiding telephone "tag," providing more reliable information, reducing paperwork, and helping to inform patients. With e-mail, patients and physicians can now sidestep the frustration of missing connections, leaving messages, and waiting on hold, all of which waste time.

Enhanced efficiency and communication triage are some advantages of e-mail. Experienced e-mail users can create standard messages, stored in the computer's memory, that address general concerns or provide specific instructions on accessing the health care organization. Storing messages and information in the computer database can reduce some office paperwork. Moreover, e-mail messages can contain links to Web addresses that appear as highlighted text. This feature allows patients to

go directly to relevant information or documents. Recipients can categorize urgent versus routine messages and respond accordingly. Support staff can sort through messages that require administrative attention, such as scheduling appointments.

E-mail can give patients information on taking medications as well as pre- and post-operative care instructions. For some patients, an e-mail consultation is preferable to a face-to-face conversation. Some patients may be less timid about asking questions and more frank in describing their symptoms when writing to their doctors. Patients also have a chance to re-read messages and instructions that they might forget after a conversation.

The Downside of E-mail

Physician critics of e-mail cite numerous disadvantages. First on the list is usually uncompensated clinic time. Currently, no third-party payer reimburses physicians for time spent communicating with patients online (of course, telephone consultations generally are not reimbursed, either). "There's no time allocated in my workday to provide this service. What is the reimbursement code to charge?" asks an internist from St. Paul. "And we don't have convenient computer workstations in the exam rooms."

Abuse of e-mail by patients—too many messages or vague messages—also concern some doctors. Sheeler notes that, just as some patients may have numerous concerns when they arrive in the doctor's office, some people may try to communicate a multitude of things by e-mail. "When this gets to be more than the format can handle effectively, I try to meet face to face with the patient to sort out priorities," he says. "I have found that most patients are very respectful and realize that this is an added service we are offering to them when it is a mutually effective way to communicate."

A Sentinel Study of E-mail

A recent study at the University of Virginia Health Sciences Center in Charlottesville bears out Sheeler's experience.² In a review of more than 1,200 e-mails to the department of pediatric gastroenterology during a 33-month period from 1995 to 1998, a research group headed by Stephen Borowitz, M.D., found that the majority of e-mails (81 percent) were initiated by parents, with 10 percent initiated by physicians, and 9 percent by other health care professionals.

In 69 percent of study cases, the e-mail contained a specific question about the cause of a child's symptoms, diagnostic tests, and/or therapy. Nearly 87 percent of all requests were answered within 48 hours, and on average, reading and responding to each e-mail took slightly less than four minutes, or approximately the same time for an equivalent telephone conversation. Furthermore, most physician responses were brief (only a few paragraphs) and usually recommended that a patient come in for an exam.

Unlike small clinics and individual practitioners, the University of Virginia Health Sciences Center assigned two faculty physicians and a nutritionist to respond to all e-mail inquiries. In addition, prior to the study, they developed an e-mail consultation form and prepared structured responses, which minimized response time.

Yet, despite the generally positive response, the Vir-

ginia doctors noted that online information and e-mail consulting included some pitfalls, such as potential misunderstanding and incorrect assumptions between physicians and patients when exchanging information. "E-mail correspondence with an unfamiliar consultant cannot and should not substitute for [face-to-face] examination and care by a physician," they said.

Unresolved Issues

E-mail has created some new ethical and legal questions that are currently under review by medical associations and institutions. How do you assure patient privacy and confidentiality online? Can you get a patient's consent online? How do you assure authorship of the e-mails? Should e-mails be part of the patient's medical record? (These issues are discussed in the article "Malpractice Risks Online," page 55.) ➔

E-mail Correspondence Tips

From: MM@mnmed.org

To: Readers@mnmed.mag

Some general guidelines for e-mail communication:

- Reread your message before sending it. Double-check the name and e-mail address of the intended recipient. Be careful when forwarding messages.
- Avoid anger, sarcasm, criticism, and libelous references to third parties.
- Use templates to respond to frequently asked questions. These can either be part of the text or embedded as an attachment.
- Develop a triage system with your clinical support staff. Alert them that you may be forwarding e-mail. They can then reply accordingly.
- Establish estimated response times for e-mail from patients and convey this information to them.
- Advise patients to contact you by e-mail if they have questions and to use the telephone in an emergency.
- Ask patients to include their patient identification number and telephone number in e-mail. This information helps in scheduling visits and filling prescription orders.
- If a patient sends lengthy e-mails, request brevity in future messages.
- Be discreet. Remember that the patient's computer may have few security safeguards. For example, don't use the phrase in the header, "About your HIV test."
- Don't initiate a discussion of a new condition unless the patient first grants consent.
- Don't communicate electronically with patients unless you have first interviewed or examined them in person.
- If you are not connected to an institutional LAN (local area network) computer system, back up your e-mails and store them in the event they are required to be part of the medical record.

Privacy issues may be resolved by a new cyberspace technology—encryption, a method of scrambling electronic messages to prevent access by unauthorized people. Encryption is expected to become a standard feature in future versions of common browsers such as Netscape Navigator and Microsoft Internet Explorer.

Emergency response to critical questions is another thorny issue. For example, what is a reasonable time frame in which to return e-mails?

The Future of E-mail

"This is a technology that, like it or not, we are all going to be using," says Daniel Sands, M.D., of Boston's Beth Israel Deaconess Medical Center, and a co-author of guidelines on e-mail published by the American Medical Informatics Association <<http://www.amia.org>>.

Some futurists say society is entering a new era of communication that will have significant impact on medicine. They call for studies of the effect of e-mail on physician workload and to determine whether or not patients more

easily assimilate information conveyed online.

Tom Ferguson, M.D., editor and publisher of *The Newsletter of Consumer Health Informatics* and *Online Health*, commented in the October 1998 *Journal of the American Medical Association*: "Physicians may find it far easier than they think to offer their patients their own personalized blend of highly accessible, high-quality, online health resources. In addition to welcoming patient e-mail under appropriate circumstances, physicians might establish their own Web pages, with lists of frequently asked questions and answers, and annotated links to useful and authoritative medical Web sites."³

Ferguson continued, "[Electronic communication] serves current patients, helps attract new ones, and might even allow physicians to budget their own time more effectively. Just as the most caring, competent, and sensitive physicians of today would be hard-pressed to build a successful practice without a telephone, those who choose not to communicate electronically with patients may soon find themselves at a similar disadvantage."

If future studies find e-mail to be cost-effective, third-party payers may someday provide reimbursement for the service. It is uncertain, however, what will happen when e-mail communication between doctors and patients becomes the norm.

"I can handle 10 messages a day," says Sheeler. "I could not respond to 100, or possibly even 50 e-mails. Eventually, we'll have to develop a system of triage, just like we did with the telephone." MM

Ralph Heussner is a managing editor in the Health Information Division of Mayo Medical Ventures at Mayo Clinic, Rochester, Minnesota.

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A STOP AT THE OASIS



Lessons from the Mayo Clinic's Popular Web Site

The editor of a leading health information Web site shares strategies for success.

BY BROOKS S. EDWARDS, M.D.

Mayo Foundation has a long history of providing consumer-based health information for its patients and the general public. The health information division of Mayo Medical Ventures was created in 1985 to support and enhance this function. In the last 14 years, this group has published books, newsletters, and CD-ROMs for lay audiences.

In 1995, Mayo released a new edition of its best-selling CD-ROM, *Mayo Clinic Family Health*, which had sold more than a million copies. While the disc was critically acclaimed, consumers were asking for new information to supplement and update it. This demand served as both a stimulus and challenge for the Mayo health information group. In 1995, the Internet was still new to most people, but we found compelling evidence that its acceptance and penetration would grow rapidly. We decided to find out whether a large, tertiary medical center could create and disseminate useful health information to the general public on the World Wide Web. To start, we asked three questions: 1) Could Mayo Clinic create a Web site sufficiently broad and deep to meet the needs of most users? 2) Would the physicians and scientists at Mayo Foundation cooperate with us and provide expertise in creating a daily publication? 3) Would traffic to the site reach sufficient levels to justify the effort?

Development of Mayo Online Health Network (the site's original name) began in the spring of 1995. We pulled together a close-knit editorial team of physicians, dietitians, other health care professionals, and experienced writers and editors. The editorial team met frequently to develop a mission statement for the project. We then commissioned market research to better define consumer needs and identify common medical conditions and health care concerns. We were cautious from the beginning to make sure that the site would not cross the

Health Information Publications from Mayo Clinic

Books

Mayo Clinic Family Health Book
Mayo Clinic Complete Book of Pregnancy and Baby's First Year
Mayo Clinic Heart Book
The Mayo Clinic/Williams-Sonoma Cookbook
Mayo Clinic Guide to Self-Care
Mayo Clinic on Arthritis (to be released May 1999)
Mayo Clinic on High Blood Pressure (to be released May 1999)

Newsletters

Mayo Clinic Health Letter
Mayo Clinic Women's HealthSource
Mayo Clinic HealthQuest

CD-ROMs

Mayo Clinic Family Health
Mayo Clinic Family Pharmacist
Mayo Clinic Total Heart
Mayo Clinic/ESPN Sports Health and Fitness

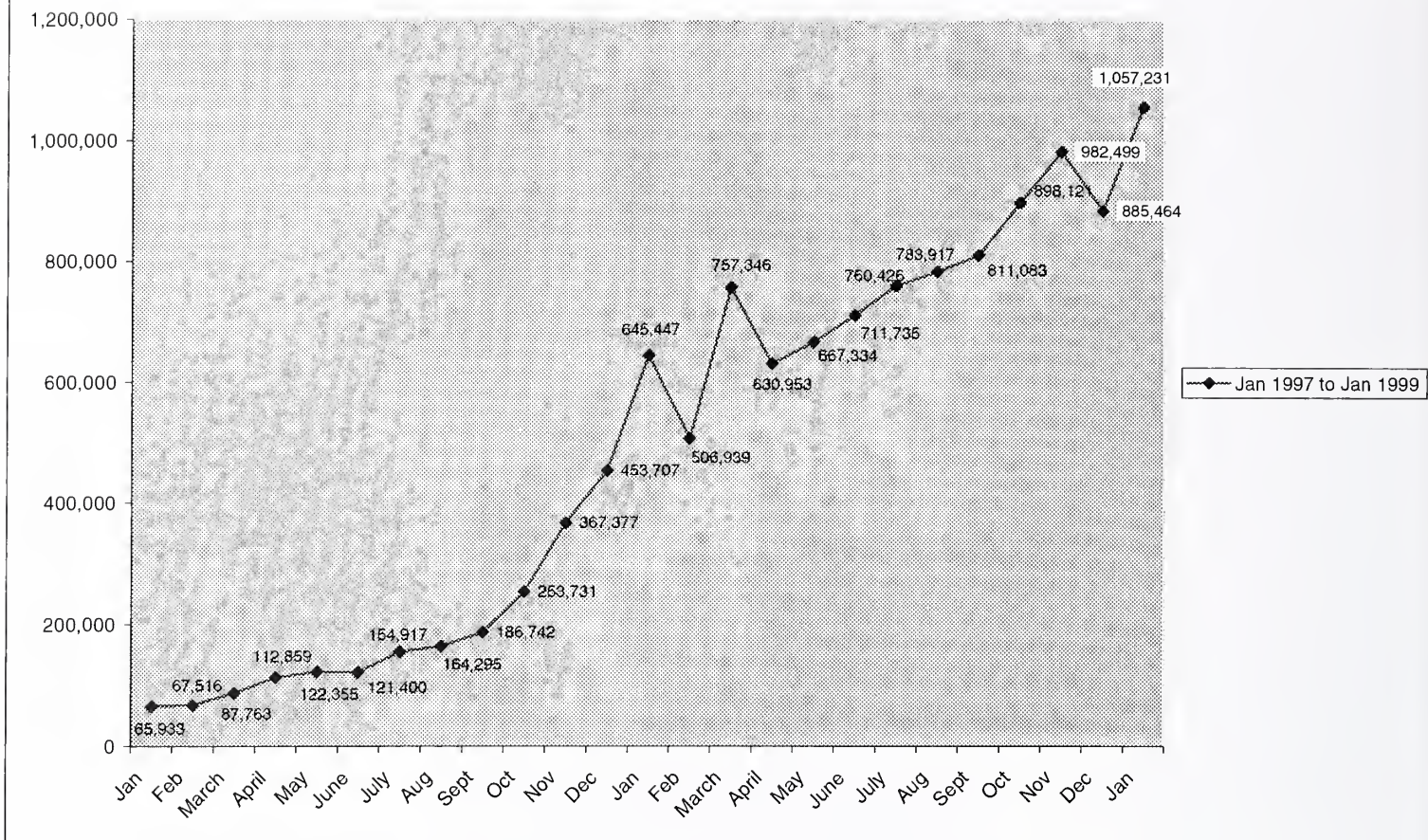
boundary into the practice of medicine. Also, to be viewed as a credible source of reliable health information, we would not use the site to "market" Mayo Clinic or any of its services. The site would serve as a source of unbiased health information, not as a way to promote Mayo activities or recruit patients.

To build the Internet site, we formed a partnership with the electronic publisher that had published our CD-ROMs, working closely with this group to ensure that the site was graphically appealing and user-friendly. We stressed the need for our server to be consistent and stable so that the site would be accessible at all times. Graphics were limited at the time because the typical user had only a 1,200-baud modem.

The site went live on October 4, 1995, and our "experiment" continues to this day. We continue to generate timely content and publish new material five days a week. Over 6,000 separate content items have been developed for the site, including many interactive quizzes and self-assessments, which have proven very popular with readers. An editorial board of 19 Mayo physicians and health care professionals reviews the site regularly and guides the editorial team in content development. The name of the site has changed to Mayo Clinic Health Oasis; the address is www.mayohealth.org. Our partnership with the original publisher has ended, and we now contract with an agency for technical Web site development and maintenance. Mayo Clinic staff members have been generous in

Left: The Mayo Clinic Health Oasis home page. New content is added Monday through Friday. Topical Resource Centers are listed on the right. The search function is prominently displayed on the home page, since the majority of users come to the site in search of specific health information.

1997-1998 Oasis Monthly Visits



Figure—Mayo Clinic Health Oasis user visits per month from January 1997 until January 1999.

providing assistance both as expert resources and content reviewers. They quickly came to understand the rapid news cycle of daily publishing and have been tremendously supportive.

In answer to our initial three questions, we believe that our site meets the needs of most users. In a survey of 11,585 Oasis users, 88 percent of respondents reported that they would return to it in the future, and only 7 percent of users could not find the specific health information they sought (often regarding rather obscure topics). Traffic has increased from an initial few hundred visits per month to over one million visits during January 1999 (see the figure). The site has received numerous major awards and positive reviews and is often cited in the national media.

We have learned a number of important lessons during the last three and a half years.

Content Is King

The quality of information a health Web site provides is by far the most important determinant of its value. While the Internet now allows for eye-catching multimedia presentations, most people who visit health information sites are interested in obtaining reliable, high-quality information that is timely and addresses their needs. With the proliferation of Web sites, users have an over-

whelming array of options. For most consumers, however, the primary concern is accuracy. Users want to know they can trust the information they find on a site. At Mayo Clinic Health Oasis, we recognize that the accuracy and reliability of our information is our most precious commodity. Health editors and writers work directly with at least one physician or scientist (and usually more) to develop each piece of original content. Before it is published online, it is reviewed by a minimum of three Mayo experts. All content on the site displays the date it was created so that the user knows how current it is. We regularly review and update older material.

Oasis subscribes to the HON (Health on the Net) code of conduct for medical and health sites. This voluntary international code details eight principals developed by the Health on the Net Foundation <www.hon.ch/HONcode/Conduct.html> to help “unify and standardize the reliability of medical and health information available on the World Wide Web.”

Understand the Audience

Successful health Web site development depends on understanding the needs and desires of the audience. This can be accomplished in several ways. Simple demographic information does not always give a clear picture of users' needs—while the typical health site visitor may be

an adult woman, she may be looking for information for herself, her partner, her children, or her aging parents. User feedback, surveys, and tracking article use (page views) are all important. This is an ongoing process as use of the Internet expands to include new and different demographic groups.

Make the Site Easy to Navigate

Having a wealth of information on a site does no good if the content is not easily accessible to users. Clear and consistent navigational tools are the foundation. Users approach information retrieval differently, so different options for accessing content are needed, including a good search engine.

This challenge has been particularly important at Oasis, where we now have over 6,000 pages of content. We continue to learn from user feedback and have redesigned the site several times to enhance its usability. Redesign is a never-ending process.

Build Strong Strategic Alliances

As the name implies, the Web is a highly interconnected network of individual Internet sites. As users enter the Web, they can move almost seamlessly from one site to another. Traffic to any one site depends in part upon its links to search engines and other sites. The only reliable way to ensure that others will link to your site is to offer outstanding content.

Many sites provide links to Oasis, and Oasis material is published directly on several sites, including CNN Health, Microsoft.com, and My Yahoo. These sites have formed alliances with Oasis, allowing their users daily access to Oasis material. In return, users become familiar with Oasis as a source of reliable health information.

Be Prepared for Change

Change is a daily reality of the Internet as hardware and software applications evolve. Common publishing tools and languages in use today—Java, Active X, audio and video streaming—were unavailable just a few years ago. Data transfer with faster modems is increasing, and bandwidth is growing rapidly. This allows for more sophisticated presentations with graphically intense material. Successful Web sites keep abreast of changing technology and utilize it to enhance the user experience and aid in information delivery.

Use caution, however, in embracing new Web site technology. In some cases, the technology is initially available only to users with high-end computer systems. In our experience, most important advances trickle down to average online users within 12 to 18 months.

Our experiment in developing Mayo Clinic Health Oasis leads us to conclude that health information can be conveyed effectively and powerfully with the Internet. The rapid growth of the Internet and its use across many

different demographic lines suggest that it is not simply a passing fancy but represents a fundamental change in how we obtain and share information. The Internet is the open door to the information age and gives users access to knowledge previously unavailable. Medical Web site users can become better consumers of health resources and better partners in the doctor-patient relationship.

Creating a health Web site is an ongoing process. New content must be developed continually and old content reviewed, updated, or removed. Technological advances allow for increased efficiency and compelling presentation of information. The potential for greater personalization holds the promise that these sites will reach an ever-expanding number of users and aid in improving their health and the health of their families. **MM**

Brooks Edwards is a cardiologist at Mayo Clinic and the medical editor of Mayo Clinic Health Oasis. His e-mail address is edwards.brooks@mayo.edu.

ACKNOWLEDGMENTS

The author wishes to acknowledge the outstanding work of the editorial and management staff of Mayo Clinic Health Oasis in overseeing the development of the Web site and its maintenance. Because of their daily commitment to excellence, this project has been successful.

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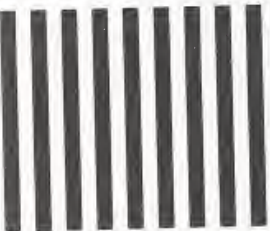
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ANNOUNCEMENTS



Members Urged to Contact Legislators about 'Sick Tax'

The debate over whether to repeal the 1.5 percent sick tax for all providers is expected to continue until the end of the legislative session, and the MMA is urging members to stay involved. For more information, call the Center for Physician Advocacy hotline at 1-888/662-6774.

Infection Control CME Rule Repealed

Physicians and other licensees of health-related boards are no longer required to receive continuing education in infection control. Gov. Jesse Ventura signed an MMA-backed bill repealing the infection control CME mandate March 8; the new law took effect March 9.

The bill, authored by Sen. Dave Ten Eyck, DFL-East Gull Lake, grew out of a resolution passed by the 1998 MMA House of Delegates.

MMA Members Urged to Weigh in on APN Bill

Despite earlier assurances that the Senate Health and Family Security Committee would not hear the advanced practice nursing bill until nurses' groups and the MMA reached agreement on it, the committee passed S.F. 225 March 17—after amending it to address some, but not all, of the MMA's concerns.

Now the MMA is calling on physicians to urge their representatives on the House Health and Human Services Policy Committee not to hear the companion bill, H.F. 718, until the MMA, the anesthesiologists, and the nursing groups concur on its language. The bill's House author is Rep. Dennis Ozment, DFL-Rosemount.

Just days earlier—after months of negotiations—a compromise seemed within reach. The Minnesota Nurses Association (MNA), the MMA, and the Minnesota Society of Anesthesiology (MSA) were near agreement on the definition of "collaborative management," a cooperative arrangement between an advanced practice nurse and a physician.

Previously, the nurses' contention that no need exists for a defined collaborative arrangement had been the biggest stumbling block to MMA acceptance of the APN legislation. But after intensive discussions with MMA leadership and staff, the MNA and the Board of Nursing agreed to include a provision, reflecting actual practice, that describes collaborative arrangements between APNs and physicians. The remaining difficulty has been agreeing on the details of that description.

MMA Blocks Alternative Medicine Bill

Thanks largely to aggressive efforts by the Minnesota Medical Association, a complementary medicine proposal that posed serious patient safety questions has been tabled and now calls for a study. See story on page 35.

The APNs' representatives were also persuaded to keep the written protocol for prescribing that they originally sought to delete from state statute.

Up until the surprise hearing on Senate Majority Leader Roger Moe's bill took place, the MMA and the nursing groups were ironing out final differences regarding the exact definition of "collaborative management."

MMA President Judith Shank, M.D., and MSA President Judy Meisner, M.D., testified against the version of S.F. 225 that Moe brought to the hearing. Shank, who earned a master's degree in nursing before going to medical school, said that having been a nurse and later a physician taught her the importance of collaboration between the professions.

"I know from personal experience . . . [that] to say that the training, preparation, and knowledge base of individuals both entering and practicing these two distinct professions is the same is simply not true," Shank said. "Our position regarding the necessity

APN cont. on 36

VIEWPOINT

Paul C. Matson, M.D.

Chair, MMA Board of Trustees



MMA Builds Bridges to Success

One of our most effective strategies at the Legislature is building bridges. We form coalitions with groups that share our goals and seek compromise with those whose aims are different from our own. Sometimes this approach leads to success; sometimes despite our best efforts, the bridge collapses and we find ourselves on opposite sides of the river.

This year the MMA formed the Coalition for Replacing the Provider Tax, comprised of 22 organizations working together to replace the sick tax with a fair, broad-based funding source. Through the coalition, we pool our resources and exert more influence on legislators. The coalition's "No Sick Tax" button is a familiar sight at the Capitol and meetings with legislators have been held throughout Minnesota. We are also stirring up grassroots action among our own members. In March, the MMA sent you a flier with talking points, as well as a postcard with the phone number of your senator. As the struggle over the budget grows more contentious, we don't know whether we will succeed, but our partners in the coalition give us an edge.

As *News & Views* goes to press, it remains to be seen whether our attempts to build bridges with the advanced practice nurses (APNs) will succeed or fall apart in midstream. The MMA has met with the nursing community for months to seek agreement on collaborative practice arrangements.

The original legislation proposed by the nurses would have given APNs broad authority to prescribe and practice medicine independently. We support the nurses' desire to define the differences in practice between APNs and other nurses, but oppose giving APNs the authority to practice medicine independently. Based on the findings of the MMA's APN task force, we believe the collaborative model reflects current practice and is best for patients.

Now, after months of negotiation, the prescribing provision has been removed and all sides agree there should be "collaborative management." But disagreement over the definition of that term threatens to demolish the bridge we so carefully constructed. The Senate bill was amended to allow chiropractors as well as physicians to form a "mutually agreed upon plan" with an APN.

The MMA is urging legislators to change this proposal. Chiropractors are not licensed to practice medicine and cannot delegate authority to practice medicine. Efforts to find language that will span the gap between us and the APNs continue.

The MMA has succeeded in resolving disagreement over proposed changes to the Pharmacy Practice Act. Originally, the pharmacists' proposal would have authorized them to modify a patient's treatment under a broad, ill-defined collaborative agreement. But after many discussions, the bill was changed to allow changes in drug therapies only under a specific protocol between a patient's individual pharmacist and his or her treating physician. The pharmacists also removed a controversial proposal that would have allowed them to immunize patients.

The road to agreement is often long and arduous, but shortcuts are hard to find. Legislators like to see compromise; they do not want to be forced to choose between two groups of constituents. The MMA shows a willingness to work things out, hammering out language that can be accepted by all sides without losing sight of the principles that guide us. ■

MMA Blocks Complementary Medicine Bill

Thanks largely to aggressive efforts by the Minnesota Medical Association, a complementary medicine proposal that posed serious patient safety questions has been tabled and now calls for a study.

H.F. 537, authored by Rep. Lynda Boudreau, R-Faribault, would have left a patient who had a complaint about care given by an alternative provider without the kind of recourse available to patients of other health practitioners. It included language to prevent regulatory agencies or county attorneys from bringing any criminal, civil, or disciplinary action against an unlicensed alternative health

care provider—as long as he or she had obtained signed “informed consent” papers from the patient, and unless the state could prove that the care provided caused “serious direct mental or physical harm.” The MMA testified repeatedly against the bill, arguing that it was “contrary to the entire existing regulatory scheme” for health professions in Minnesota.

Although Boudreau brought several amendments aimed at addressing some concerns about the bill to a March 19 hearing in the House Civil Law Committee, legislators decided the issue was too complicated to rush through this session. After

MMA director of health law Patricia Franklin reiterated MMA concerns about the measure, the committee laid the bill over for study.

“Our essential opposition is that patients could sign away their right to any sort of remedy if something untoward happened . . . I’m not sure the amendments would have fixed that,” Franklin said. “We had significant reservations about this bill’s high threshold for either the state to act, or for someone to make a claim civilly. It really represented a major paradigm shift, and we’re glad lawmakers decided they weren’t ready to do this without careful study.” ■

MMA Seeks Award Nominees

Stop the Violence Award

MMA members are invited to submit nominations for the annual Stop the Violence Award, to be presented at the 1999 MMA Annual Meeting in September. Letters soliciting nominations have been sent to legislators, women’s shelters, and agencies that serve women and children affected by domestic violence. Nominations are due **May 5**. For more information about the MMA Stop the Violence Award, call Lorrie Holmgren at the MMA at 612/378-1875 or 800/DIAL MMA (342-5662).

Minority Service Award

The Minnesota Medical Association Committee on Minority Affairs is seeking nominees for the 1999 MMA Minority Affairs Meritorious Service Award.

Any Minnesota physician, regardless of race, who has provided outstanding health care service to a minority population is eligible for nomination. The annual award, established by the 1993 MMA House of Delegates, will be presented in September at the 1999 MMA Annual Meeting. Nominations must include a complete description of the medical service provided by the nominee, as well as endorsements from each of the following: a community leader, a patient within the minority population served by the nominee, and a professional colleague. All nominations and supporting documents must be submitted to Wendy O’Donnell at the MMA by **April 30**. For more information, call O’Donnell at 612/378-1875 or 800/DIAL MMA (342-5662). ■

House Committee Rejects .08 Bill

For the third year in a row, a bill to lower Minnesota’s drunken-driving threshold appears to have met a dead end.

The House version of the measure, authored by Reps. Matt Entenza, DFL-St. Paul, and Kevin Goodno, R-Moorhead, was voted down in the House Transportation Finance Committee March 17. And as *News & Views* went to press, its companion bill, authored by Sen. Leo Foley, DFL-Coon Rapids, had not cleared necessary committee hurdles in the Senate.

The Minnesota Medical Association—along with Mothers Against Drunk Driving and numerous law enforcement organizations—has been a strong supporter of changing the legal blood-alcohol limit from .10 to .08 percent. The liquor industry has vigorously opposed the .08 standard. ■

Renew Your Membership for 1999

It's not too late to renew your membership for 1999—and you can do it over the telephone. Simply call 800/DIAL MMA (342-5662) to request an updated renewal statement or charge your membership dues to your credit card.

Membership dues reductions may be available for physicians who have changed employment settings (i.e. are now working part-time or are semi-retired); ask membership staff for details. Don't let your membership lapse—renew today!

Thank you to the nearly 8,000 physicians—over 85 percent of MMA members—who have already renewed their commitment to organized medicine. ■

New Medicare Fiscal Intermediary Chosen

Noridian Mutual Insurance Co. has been recommended by the Blue Cross Association to be Minnesota's new Medicare Part A fiscal intermediary. Noridian Mutual is a North Dakota subsidiary of Blue Cross and Blue Shield.

A formal announcement by the Health Care Financing Administration was expected as *News & Views* went to press. Blue Cross and Blue Shield of Minnesota announced in January that it was discontinuing its role as fiscal intermediary for Medicare in the state after 33 years. ■

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APN from 33

of collaboration between physicians and APNs is reflective of best practice—and of actual practice—in Minnesota.” She called the definition of collaborative management “the lynchpin” of the APN bill.

An amendment offered during the hearing by Sen. Sheila Kiscaden, R-Rochester, defined collaborative management as a “mutually agreed upon plan between an advanced practice registered nurse and one or more physicians . . . that designates the scope of collaboration necessary to jointly manage the care of patients.” Before adopting the amendment, the committee also added the words “or dentists, podiatrists, and chiropractors” after “physicians.”

Since chiropractors aren't licensed

to practice medicine and therefore can't delegate authority to practice medicine, the amendment poses serious problems, said Dave Renner, MMA director of state and federal legislation. The MMA sent e-mail alerts March 19 to members whose representatives serve on the House HHS committee, imploring the physicians to contact their representatives about the bill—specifically, about the inclusion of chiropractors in the “collaborative management” definition.

The MMA continues to negotiate with nursing organizations but will oppose the bill if no agreement is reached. Watch *The Physician Advocate* for further updates, or call the Center for Physician Advocacy at 1-888/662-6774. ■

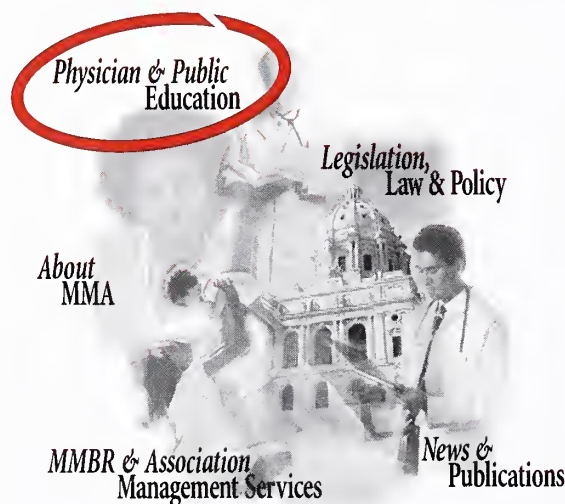
Health Care Directives Bill Becomes Law

Gov. Jesse Ventura signed a bill March 16 to modify the health care directive form to allow a person to authorize his or her health care agent to decide whether his or her tissue and/or eyes are donated upon his or her death. The MMA

supported the legislation, now Chapter 14, which was authored by Rep. Darlene Luther, DFL-Brooklyn Park.

Watch upcoming publications for information about the MMA's “Live and Then Give” campaign to promote organ and tissue donation. ■

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NEWS DIGEST

*People and places
making medical news*



People & Places

New leaders filled the top two administrative posts at Hennepin County Medical Center (HCMC) on March 1 this year. Jeff Spartz, who was Hennepin County administrator, took over as HCMC administrator, succeeding John W. Bluford, while Charles F. Richards succeeded Cathy Disch as chief operating officer. Spartz served on the Hennepin County Board of Commissioners from 1976 to 1990; from 1992 to 1996 he worked with Capital Partnerships Inc., an organization specializing in public-private approaches to urban infrastructure systems and facilities. Richards has been associated with HCMC since 1969. In recent years, he has overseen the operations of emergency services, medical imaging, laboratories, and trauma services.

Bluford and Disch have accepted new positions at Truman Medical Center Systems, Inc., in Kansas City, Missouri.

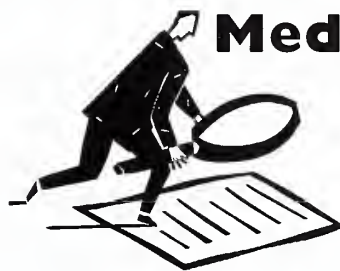
Seymour Levitt, M.D., professor of therapeutic radiology at the University of Minnesota, has been elected president of the Radiological Society of North America. As president, he will help manage the RSNA's education programs, annual meeting, and scientific assembly, and he will promote research in radiology and related sciences. Levitt has written or co-written 10

books, 15 book chapters, and more than 250 articles.

Jeffrey Kahn, Ph.D., M.P.H., director of the Center for Bioethics at the University of Minnesota, has been selected as a consultant to a presidential commission investigating the ethical, legal, and policy implications of human embryonic stem cell research. Kahn will consult for the National Bioethics Advisory Commission, which President Clinton created in October 1995. The

commission is expected to issue its report on stem cell research in June this year.

James Moller, M.D., a professor of pediatrics at the University of Minnesota, has been named head of the department of pediatrics; he has been interim head since 1997. Moller is known as an outstanding pediatrician and educator who is internationally recognized for his contributions to cardiology, said



Medicine, Law & Policy

About 6 million children nationwide have disabilities, and some require respirators, feeding tubes, and other medical technology. In writing the court's opinion, Justice John Paul Stevens said that the school must offer any assistance necessary, short of a physician's care, to keep a student in school.

Schools Must Provide Medical Support for Disabled Kids

The U.S. Supreme Court ruled that public schools must provide an array of medical support services for students with disabilities. Expansively interpreting a federal law intended to improve educational prospects for disabled children, the court ruled that a Cedar Rapids, Iowa, school district must provide all-day nursing care for a quadriplegic student.

Michael Scandrett, executive director of the Minnesota Council of Health Plans, said that it is already well-established in the state that schools should pay for the services in question. Meanwhile, state and federal education groups are pushing for the federal government to pay for more of the special education services it requires states to provide. ■

Alfred Michael, M.D., dean of the Medical School. He has trained about 75 pediatric cardiology fellows and has received numerous teaching awards. His current research interests include outcomes of cardiac surgery in children and long-term follow-up of congenital heart disease.

The University of Minnesota is planning a nonresidential campus

in Rochester to serve juniors and seniors in applied health care fields, if the Legislature approves the project cost of \$5 million to \$7 million this session.

The plan calls for expanding collaborative research between the university and Mayo Clinic. The new branch campus would have ties with the Minnesota State Col-

leges and University System's Rochester Community and Technical College. Students who complete freshman and sophomore work at RCTC could continue on to a four-year degree at the proposed University of Minnesota at Rochester.

Initially, class offerings would focus on health technology, education, and social services. ■



Socioeconomics

Allina to Discontinue Medica Primary

Allina Health System will discontinue Medica Primary, one of its HMOs, by the end of the year, and the future of another Allina HMO, Medica Premier, is uncertain.

Medica Primary's enrollment dropped to 30,000 members from a peak of 140,000 members in 1990. Many small business and state government workers will be affected by the plan's demise; about 10,000 government employees are currently signed up for Primary. Medica is required by state law to offer an alternative HMO to members at a reasonable cost. Such details are being finalized, Medica officials said.

Medica Premier has 40,000 members, down from a high of 75,000 in 1996. While the fate of the plan is uncertain, Medica officials said that they have temporarily closed enrollment in the plan. Unlike the Premier and Primary plans, Medica's most popular plan, Medica Choice, offers access to a large physician network.

"Much of what this marketplace has wanted is choice," said Jim Eppel, a senior Medica official. "Those models perceived as more restrictive have had a difficult time."

Medtronic Acquires Avecor and Reorganizes

Medtronic Inc. will close an Eden Prairie plant that makes heart surgery products and another facility in California as part of its purchase of Avecor Cardiovascular. The 175 workers at the Bio Medicus facility in Eden Prairie will be offered jobs at Avecor's Brooklyn Park plant; however, just a few of the 560 work-

ers at Avecor in Anaheim, California, will be transferred. The company expects to cut its total work force by 15 percent after the restructuring.

The two-year plan aims to consolidate production of machines that circulate blood and supply oxygen during heart surgery. Analysts say that the consolidation will help Medtronic maintain its lead in the market for such products. Avecor is the last of five major acquisitions by Medtronic in recent months. ■

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Research & Innovations

'U' Study Recommends Mouth Guards for Student Athletes

A University of Minnesota study, published in the March *Journal of Public Health Dentistry*, found that one in 10 Minnesota high school wrestlers, basketball players, and soccer players suffers sports-related dental injuries that require care by a physician or dentist.

Brent Kvittem, M.S., D.D.S., who initiated the project as part of his master's thesis, and colleagues surveyed 318 male and female athletes participating in contact sports in which a mouth guard is not required by the Minnesota State High School League (MSHSL). Seventy-two percent of wrestlers reported an injury, as did 55 percent of the basketball players and 28 percent of the soccer players. None of the 6 percent of athletes who used mouth guards reported injury.

The MSHSL enacted a rule in 1993 that required mouth guards in soccer, basketball, and wrestling, but rescinded the rule in part because of the lack of data on the frequency of injury in these sports.

The study authors recommend that dentists inform their patients who are student athletes about the risks of orofacial injury and discuss custom-made mouth guards. They also suggest policies requiring school officials to record such injuries, inform athletes of their risk, and encourage the use of mouth guards.

Treatment Cures Rare Brain Tumor in Youths

Youth who develop a rare malig-

nant brain tumor can be cured with a new treatment that combines two chemotherapy drugs with low-dose radiation, researchers at the Mayo Clinic and elsewhere have found. Researchers at the Children's Oncology Group of the Upper Midwest, based at the Mayo Clinic, treated 17 youths aged 8 to 24 with etoposide and cisplatin followed by radiation. All 17 were cured.

The central nervous system germ cell tumors generally grow in the central part of the brain, either in the pineal gland or close to the pituitary gland. Only about 100 cases occur in the United States each year, and the disease strikes older children and adolescents.

"It is the combination of the two [drugs] that seems to be the most effective, and actually safer than high-dose chemotherapy," said Jan Buckner, M.D., a Mayo Clinic oncologist and the study's principal investigator. "It shows that the blood-brain barrier does not prohibit effective chemotherapy for brain tumor patients." The study appeared in the March *Journal of Clinical Oncology*.

Study Shows Simple Cancer Screening Saves Lives

Researchers at the University of Minnesota have found that biennial screening for blood in the stool can drastically reduce death from colon cancer. The conclusion of an 18-year study extends initial research from 1993 showing that annual screening and follow-up reduces mortality from colorectal cancer by 33 percent. Led by Jack Mandel, Ph.D, professor of public health, the team found that biennial screening with a simple, inexpensive fecal occult blood test can lead to a 21 percent reduction in mortality from



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the disease.

Combined with findings from two trials in Europe, the results underscore the importance of insurance coverage for these tests, researchers say. "This literally proves the benefit of screening in reducing

death rates," said John Bond, M.D., professor of public health and co-author of the report, which was published in the March 3 *Journal of the National Cancer Institute*.

The Minnesota and European trials involved 250,000 people. Col-

orectal cancer is the second most common cancer in the United States; each year an estimated 56,000 people die from it. Between 85 percent and 95 percent of cases caught early can be cured.

Medicare began paying for the screenings in January 1998. The test costs about \$10.

Laser Treatment Improves Quality of Life for Lung Cancer Patients

University of Minnesota doctors are among the first in the state to use a new laser treatment to treat late-stage lung cancer. The treatment—called photodynamic therapy—does not cure late-stage lung cancer, but it does open blocked airways, which improves quality of life for patients and sometimes extends life span.

Michael Maddaus, M.D., a general thoracic surgeon and oncologist, says that the laser treatment is much less dangerous than other tumor removal techniques. Although late-stage lung tumors typically return, they do so at a slower pace with the new treatment, he said. Early lung cancer can be cured by the technique; however, many lung tumors cannot be detected until they have reached an advanced, incurable stage.

Previously, photodynamic therapy had been used to treat a rare esophageal cancer as well as early lung cancer. The Food and Drug Administration approved the treatment for late-stage lung cancer last year.

The procedure is performed on an outpatient basis. Patients receive an injection of the drug Photofrin. When patients return the following day, the physician inserts a tube into the windpipe and slips in a thin wire equipped with a tiny laser, which emits a special cold light. The light's wavelength interacts with the drug, which kills the cancer cells. Patients then return a week later for a bronchoscopy to remove the dead lung tissue.

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What U Need 2 Know

Curing the Y2K bug can be tedious, but ignoring the problem could lead to disaster for you and your patients.

By now, everyone has heard the Y2K horror stories. Countless prognosticators predict that when January 1, 2000, strikes, planes will fall out of the sky, elevators will screech to a halt, businesses will be paralyzed, and lawsuits will clog the courts. Could this all happen? Probably not, maybe, and possibly. Depending on how you choose to address the problem, it may turn out to be a minor, fixable inconvenience or a major disaster. But one thing is for sure—if you ignore the Y2K “bug,” you will find yourself in big trouble when the millennium arrives.

For the health care community, the Y2K issue literally can have life or death ramifications. According to a recent article published by the American Medical Association (AMA), nearly every piece of medical monitoring equipment today relies on some kind of embedded microchip. Therefore, every technological device found in every medical office must be examined to ensure it is Y2K compliant. Any number of things can happen involving patient care—pacemakers may stop working, life support systems may fail; even the day-to-day operation of your practice could become a nightmare. But, like any problem involving modern technology, the fix calls for some basic steps: awareness, education, and action.

Health Care at Risk

After a year of investigation, the U.S. Senate issued a report in March cautioning that the "health care industry is one of the worst-prepared for Y2K and carries a significant potential for harm." The report noted that 64 percent of hospitals nationwide have no plan to test their Y2K remediation plans before January 1, 2000, and some 90 percent of doctors' offices are unaware of how exposed they are to Y2K problems.

Fortunately, Minnesota is ahead of the rest of the nation because its health plans have been pushing Y2K compliance, according to the Rx2000 Solutions Institute, a Minneapolis-based nonprofit clearinghouse for Y2K and health care information. "Minnesota may be moving along pretty well, but that shouldn't be taken that it is ready and everything is going to be perfect," cautions Cassandra Junker, cofounder and executive vice president of Rx2000. "Minnesota has funded massive efforts, but the jury's still out on if they will be enough."

A January 1999 survey by another Minnesota company, Endurant Business Systems, a St. Paul management consulting firm specializing in information technology, found that 83 percent of 30 medical groups surveyed had Y2K readiness teams, but only about half of those with teams knew whether their vendors were compliant. About two-thirds of the practices said they are not yet Y2K compliant, while about 30 percent said they believe that their compliance projects will inoculate them against the millennium bug. Of that 30 percent, 75 percent do not yet have contingency plans in place.

Physicians will likely be inundated with questions from their patients about Y2K and how it will affect their health care. "Patients will ask their doctors, and doctors need to learn how to answer responsibly and not expose them to false Y2K information," says Junker. "Physicians have been notably missing from our Y2K meetings around the country. We don't know how aware they are of Y2K. They have a serious stake and need to get up to the learning curve quickly."

Why Is This Happening?

The problem originated years ago when computers were being developed. To save computer memory, early programmers dropped the digits "19" off all dates. Now, when January 1, 2000, arrives, computers won't be able to recognize what year it is, which will send all kinds of equipment into a date-induced frenzy. The solution is to replace the millions of computer chips embedded in systems throughout the world with updated parts. It's an

expensive, long, tedious, but very necessary process.

A recent study by the GartnerGroup Inc., a watchdog of the information technology industry, reports that 40 percent of companies worldwide will experience "mission-critical information technology failure" because of the Y2K problem. According to Jim Duggan, research director for Gartner, there is significant variation in Y2K preparedness in different industries. The private sector generally is more prepared than government; large businesses are better prepared than small; and the financial sector is more prepared than engineering, transport, services, or construction industries. Overall, Gartner reports that Y2K failures won't cause the worldwide business meltdown that many analysts have predicted, but it will have a negative impact on the world economy that will still be evident in three to five years.

Where Do You Fall on the Spectrum?

The GartnerGroup evaluated Y2K readiness in different countries, ranking them from 1 (the best) through 4. The good news: the United States was ranked level 1. The bad news: when the study predicted corporate failure rate by industry, health care received a level-4 rating.

The key to surviving Y2K is to be prepared and to start now. "If you haven't started, you're already behind," says Kevin Lutz, vice president and chief technology officer for the AMA. Lutz urges health care professionals to become educated. "Seek professional help because chances are you don't have the internal staff to deal with the situation."

The Small Business Administration has developed an online virtual classroom to help small businesses, like small group and solo medical practices, deal with the problem. It's part of the effort organized by the President's Council on the Y2K Conversion. The SBA's interactive program has both audio and video guides and includes a self-test quiz—and offers a much needed resource; experts report that many small businesses are lagging in their attention to the Y2K issue.

What about personal computers? Most physicians own at least one computer. How will these be affected by Y2K? Since it is unlikely that any two PCs have the same collection of software and hardware, Y2K will mean something different for everyone. Most PCs built in the last two or three years are Y2K compliant, but if you aren't sure, check with the manufacturer. Good news for Mac users: Macintosh systems will recognize the correct date and time until February 6, 2040. To test your software, check with the manufacturer of each application; they can tell you if their product is Y2K compliant.

Is Your Vendor Compliant?

What does "compliant" mean, anyway? According to the experts, a piece of equipment is year 2000 compliant if it can operate normally before, during, and after midnight on December 31, 1999, without user intervention. Hospitals and health care organizations must determine whether their vendors are Y2K compliant, or at least if they are working toward that goal. For physicians who rely on outside billing services, for instance, it's imperative that they find out now where their vendors stand. For example, Medicare claims that do not have the required eight-digit date will be returned to claims processors starting in April 1999. Medicare officials say that some 95 percent of electronic claims filed through its carriers are already compliant.

It's best to get a written compliance statement from vendors. "We will write to equipment manufacturers for clients and get, in writing, the official Y2K compliance status of a particular model," says John McCally, vice president for health care consulting at Endurant Business Systems. "Once a vendor does that, it is legally liable if the equipment fails after January 1, 2000."

AMA's Lutz says communication is key. "Talk to your vendor, find out whether they have adequate plans to address the year 2000 issue. If you have any concerns, seek an alternative vendor and establish a relationship with that vendor prior to the year 2000."

Computer systems aren't the only devices that might cause trouble. "In addition to medical devices and equipment, anything with an embedded chip will likely be impacted," McCally says. All kinds of devices have potential for failure, including automated sprinkler systems, telephone systems, fax machines, copiers, fire-control systems, heating and ventilating systems, time-punch clocks, mailing equipment, security systems, elevators, radar systems, medical devices, laboratory equipment, traffic lights—the list goes on and on.

Remediation means fixing equipment, obtaining compliance reports from suppliers and vendors, and eliminating any Y2K-related weak links in health care delivery. In planning for Y2K remediation, equipment is

typically ranked as high, medium, or low risk. High risk includes any equipment or system whose failure would result in a serious health hazard to a patient or a shutdown of operations; medium risk includes equipment or systems whose failure, while significant, would not pose immediate harm to a patient. And low risk covers any system whose failure or malfunction would

All kinds of devices have potential for failure, including automated sprinkler systems, telephone systems, fax machines, copiers, fire-control systems, heating and ventilating systems, time-punch clocks, mailing equipment, security systems, elevators, radar systems, medical devices, laboratory equipment, traffic lights—the list goes on and on.

cause significant patient and business inconveniences.

Compliance will also rely on factors outside of the clinic or hospital. "Compliant is something situational, like a moving target," says Rx2000's Junker. "We are compliant if the power grid works, if transportation is delivering supplies, if telecommunications don't malfunction. The health care system is very interdependent."

The Cost

Some estimates have placed the cost of updating computers for all U.S. companies at \$300 billion; \$600 billion for businesses worldwide. But AMA's Lutz says it's harder to estimate what it might cost individual medical clinics. "You can't put a cost on it because it varies from practice to practice," says Lutz. "It depends on your current state of technology, it depends on how automated you are to begin with, and it depends on the suppliers you happen to work with. One key thing to note is that technology is only one dimension of the problem. You also have suppliers you have to work with, as well as the

medical field of payer-payee relationships. Obviously, if you can't receive appropriate medical supplies, it impacts your practice. But if you can't receive reimbursement for your services, that will have a significant impact as well."

The Health Care Financing Administration, which manages the nation's Medicare programs and processes

HCFA cannot plan for Y2K-related problems of hundreds of thousands of health care providers who, due to their own unique problems and circumstances, may not be able to process Medicare claims or payments. Health care providers, and not HCFA, must be responsible for seeing that these systems are not affected by millennium problems.

nearly a billion claims for its 38 million Medicare beneficiaries each year, is conducting a five-step compliance plan to prepare for the Y2K problem: awareness, assessment, renovation, testing, and certification. According to its Web site, "HCFA is making every effort to make sure that its mission-critical systems will work and that in the event they don't, there is a contingency plan. ... Fee-for-service providers will be able to submit Medicare claims and receive timely payment. Managed care providers will be able to process new enrollments and receive timely payments as well."

But, HCFA stresses, health care providers must make sure their own systems are compliant and adhere to the eight-digit date requirement on all Medicare claim forms. "HCFA cannot plan for Y2K-related problems of hundreds of thousands of health care providers who, due to their own unique problems and circumstances, may not be able to process Medicare claims or payments. Health care providers, and not HCFA, must be responsible for seeing that these systems are not affected by millennium problems."

Advice from the Experts

OK, so now you're terrified that the bottom will drop out when the clock strikes 12 on New Year's Eve 1999. Relax—there is plenty you can still do, starting right now, to avoid disaster. An excellent source of information is at your fingertips. The Internet, which should

remain unaffected by the Y2K bug, offers more than 2 million sites devoted entirely to the year 2000 problem. A useful starting point for the health care community is the Rx2000 Solution Institute's site <www.RX2000.org> or the Minnesota Hospital and Healthcare Partnership (MHHP) site <www.mhhp.com>; both offer news, links, and resources on the issue. Y2K software programs are also available to help guide you, and most professional associations are offering educational seminars for their members.

"The AMA is addressing the year 2000 issue on several different fronts," says Lutz, who covered the topic at the Minnesota Medical Association's Annual Meeting in October. "AMA is addressing the issue by producing educational materials for physicians through our Web site

[see Y2K Resources, page 48], we are hosting seminars to address all the various aspects of the year 2000 problem—the impact on the business, the impact from a legal perspective, the impact from the pure technology of it, and the patient safety side."

Experts suggest that businesses, clinics, and hospitals start by establishing a Y2K readiness team to conduct a thorough assessment and evaluation of all owned and leased electronic equipment, including computers, elevators, security systems, telecommunications equipment, and medical procedures and devices used by the organization. After that, determine which devices are mission critical, and how to make them compliant. At this late date, you may not be able to address everything by the end of the year—so identify those most important to the operation of the business, and deal with those first. Again, be sure to assess all vendors and suppliers.

Contingency planning is a critical step as well, says McCally. "Our survey indicated that some health care groups had developed a Y2K readiness team but hadn't done a contingency plan. Both are equally important."





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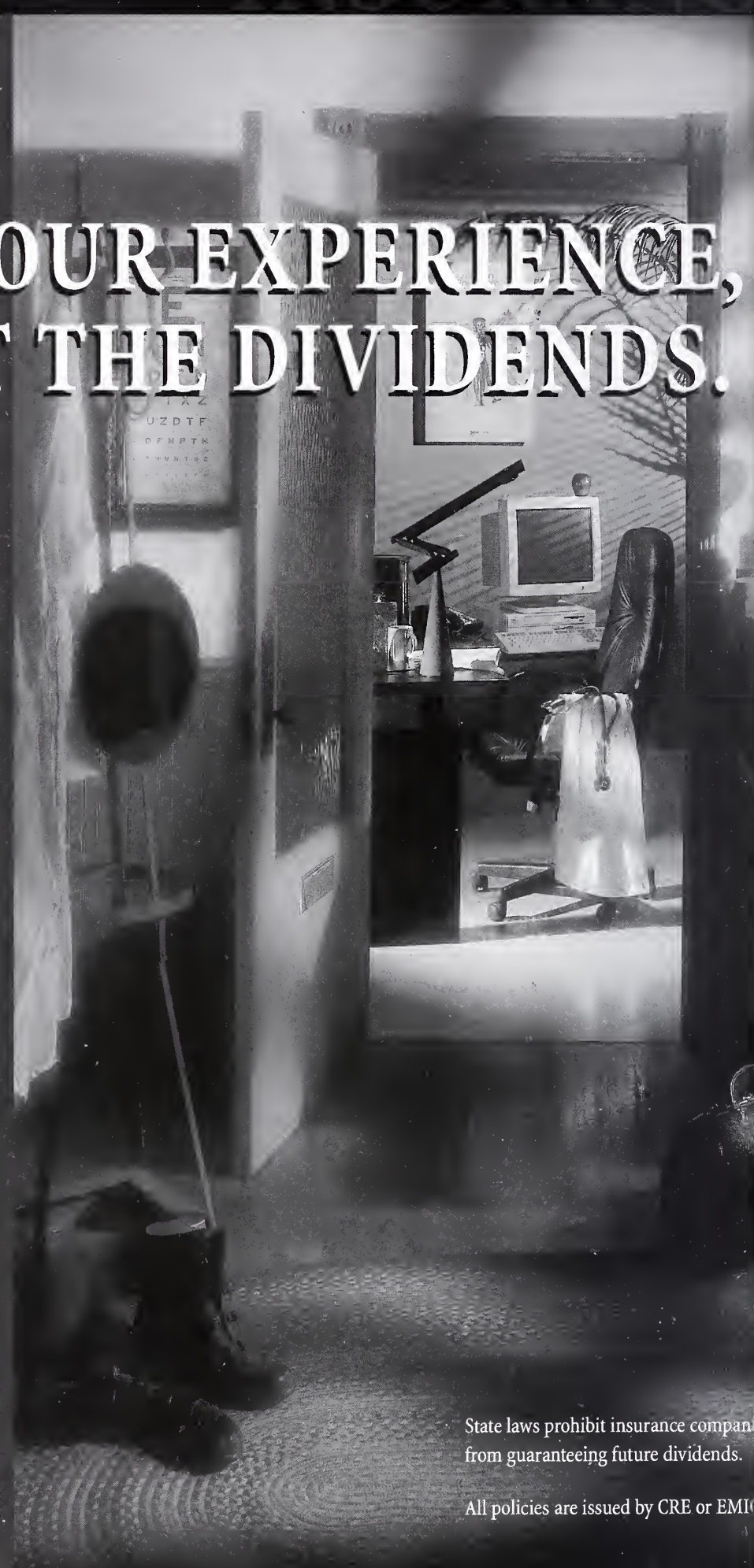
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Contingency plans should consider the larger community, says Melenie Soucheray, MHHP's director of community-based health reform. "Because [hospitals and clinics] are so intrinsic to community life, they also need to interact with other community institutions." MHHP offers model community contingency plans on its Web site.

McCally says smaller practices could encounter trouble. "I am personally worried about the physicians and medical groups in Minnesota that are not tied to a larger organization and the access to technical expertise or the ability to pay for technical assistance. Many are in out-state Minnesota, although some in the Twin Cities fall in that category," he says.

"One problem I see is that there are no uniform [state or federal] requirements for setting standards for Y2K compliance in health care," says McCally. "Nor is there any public organization providing a Y2K 'clean bill of health' certification that medical practices can use to assure patients of their preparedness."

Dispelling the Myths

A recent *USA Today* report on the Y2K situation tried to lay several myths to rest: "No, planes will not fall from

Avoiding Legal Pitfalls

Y2K problems create the potential for lawsuits, although larger corporations—such as software or manufacturing companies—are more likely to be the target of lawsuits if they falter when the millennium hits. Y2K insurance is available, but expensive. According to a recent article in *The Denver Business Journal*, a \$200 million policy costs \$20 million, and a company must prove Y2K compliance to get the policy in the first place. Many companies have liability insurance to help protect against third-party lawsuits—however, these policies may or may not cover Y2K-related losses.

To help protect conscientious business owners, President Clinton last fall signed a "good Samaritan" bill—called the "Year 2000 Information and Readiness Disclosure Act, S2392"—that protects organizations from being sued over Y2K information they disclose voluntarily. The bill creates an antitrust exemption for businesses, governments, and other organizations that want to share their Y2K information.

President Clinton's statement reads in part, "Many organizations have been reluctant to share valuable information about their experiences in dealing with the Y2K problem or the status of their Y2K efforts for fear of lawsuits. The act's limited liability protections will promote and encourage greater information sharing about both experiences and solutions, which will significantly enhance public and private sector efforts to prepare the nation's computer systems for the new millennium. However, the bill will not affect liability that may arise from Y2K failures of systems or devices."

The safest way to avoid litigation is to make sure all equipment is Y2K compliant in time. If you have any reason to believe it isn't compliant, find another way to provide that service.

the sky. What seems more likely is that systems run by the Federal Aviation Administration and services at smaller airports may encounter problems, creating a ripple effect that will disrupt schedules. Automatic teller machines will work. There have been so many reports of potential failures that banks have made a point of making sure they will operate. Only 8 percent of potential computer failures will happen at the stroke of midnight on January 1, 2000. The rest could occur over the following two years. Few VCRs care what year it is. And credit cards with expiration dates in the year 2000 or beyond have created problems, but those difficulties are being resolved."

For those who have already been working toward Y2K compliance, congratulations. For the rest of you, roll up your sleeves and let the Internet and

other resources guide you to a (relatively) headache-free happy new year.

Acknowledgment

This article was adapted with permission from the January 1999 *Michigan Medicine* article, "Year 2000 Computer Compliance: How Will This Affect You, Doctor," by Kathleen Farrell. © 1999 *Michigan Medicine*.

Y2K Resources, next page ➡

Y2K Resources

Web Sites

With more than 2 million Web sites devoted to this problem, there's more than enough information available to help guide you through the Y2K maze. The following list is just a starting point. All the sites offer a tremendous amount of information and provide links to thousands of other related sites.

- www.mhhp.com/y2k
(Minnesota Hospital and Healthcare Partnership)
- www.y2k.state.mn.us
(Minnesota Y2K)
- www.health.state.mn.us/y2k
(Minnesota Department of Health)
- www.state.mn.us/ebranch/admin/ipo/2000
(State of Minnesota)
- www.ama-assn.org
(American Medical Association)
- www.mgma.org
(Medical Group Management Association)
- www.RX2000.org
- www.fda.gov/cdrh/yr2000/y2kprblm.htm
(Food and Drug Administration's medical device compliance list)
- www.y2k.gov
(President's Council on Year 2000 Conversion)
- www.bog.frb.fed.us/y2K
(Federal site)
- www.sba.gov
(Small Business Administration)
- www.year2000.com
- www.y2k.com
- www.y2knews.com

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Publications

Tired of sitting in front of your computer screen? Many books on the millennium bug have also been published.

"Managing 00: Surviving the Year 2000 Computing Crisis," by Peter DeJager and Richard Bergeon; John Wiley & Sons, New York, NY.

"Software Quality—Analysis and Guidelines for Success," by Capers Jones; International Thomson Computer Press, Boston, MA.

"The Year 2000 Software Problem: Quantifying the Costs and Assessing the Consequences," by Capers Jones; Addison Wesley, Reading, MA.

"Year 2000 Software Crisis Solutions for IBM Legacy Systems," by Keith Jones; International Thomson Computer Press, Boston, MA.

"Solving the Year 2000 Problem," edited by Leon Kappelman; International Thomson Computer Press, Boston, MA.

"Year 2000: Best Practices for Y2K Millennium Computing," edited by Dr. Dick Lefkon; Mainframe Special Interest Group of the Association of Information Technologies, New York, NY.

"The Year 2000 Problem Solver: A Five-Step Disaster Prevention Plan," by Bryce Ragland; McGraw Hill, New York, NY.

"The Year 2000 Planning Guide," by Brian Robbins and Dr. Howard Rubin; Rubin Systems, Inc., Pound Ridge, NY.

"The Year 2000 Software Systems Crisis: Challenge of the Century," by William Ulrich and Ian S. Hayes; Prentice Hall, Yourdon Press, Upper Saddle River, NJ.

"How to 2000: A Proven Comprehensive Year 2000 Methodology," Raytheon E-Systems; IDG Books Worldwide, Foster City, CA.

"Failure Is Not An Option: Declaring War on the Year 2000 Problem," by Michael P. Harden; Century Technology Services.

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2. Guttormson NL, Bubrick MP. Mortality from ischemic colitis. *Dis Colon & Rectum*, to be published.
3. Chatterjee SN. Use of GOR-TEX grafts as vascular access procedure for chronic hemodialysis. Abstract of a paper submitted to the European Society for Artificial Organs Eighth Annual Meeting, Copenhagen, August, 1981.
4. Thompson NW. Thyroid and parathyroid. In: Welch KJ, Randolph JG, Ravitch MM, et al., eds. *Pediatric Surgery*, 4th ed. Chicago: Year Book Medical, 1986: 522-33.

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Electronic Collection of Birth and Death Records

As Minnesota outgrows its manual system of collecting birth and death information, the health department's Vital Statistics Redesign Project aims to implement electronic record collection.

Sharon Hammer, B.S.

The Minnesota Department of Health (MDH) is in the second year of the Vital Statistics Redesign Project, a five-year effort to advance an electronic vital records system by encouraging electronic collection and reporting of birth and death information in Minnesota. The MDH collects descriptive and medical information about births and deaths for civil registration, public health initiatives, statistical analysis, and research activities. Civil registration is the official recording of births and deaths so that these records can be used to establish identity or for legal purposes.

The current vital records system is a mixture of manual and electronic processing—information is collected on paper and later entered into computer files. To date, electronic technology has mostly been used for statistical analysis and research activities. Most civil registration information is still processed manually. The new system, which will be developed and implemented during 1999 and 2000, will extend the use of electronic technology to data collection, civil registration data processing, and issuance of certified copies of birth and death certificates.

Minnesota is outgrowing the manual process. More than 9 million birth and death records and related documents are stored at the MDH. Adequate space and fire protection are constant concerns. Since the MDH issues certified copies by photocopying the original record, the paper records are handled frequently, and many records are deteriorating. Counties also store paper records and express similar concerns. Also, because many paper birth records predate the Minnesota Government Data Practices Act, they have been stored in bound volumes containing the civil registration portion of both public and confidential records. Protecting confidential birth records while providing reasonable access to public birth records is difficult and time-consuming.

There are also time lags and a lack of consistency within the manual process. It may take weeks or months for the MDH to receive and process records filed in a county. If a record is amended at the county level and not changed on the state record, multiple versions of

the same birth or death record may exist. Since the manual process is not centralized, inconsistencies exist between counties. For example, there are more than 100 different formats for certified copies of birth certificates in Minnesota.

FILING BIRTH AND DEATH RECORDS

To improve data quality and timeliness, electronic birth and death records will be filed directly with the MDH. Currently, birth and death records are filed with the local registrar in the county where the birth or death occurred. Local registrar staff mail paper birth and death records in batches, which often results in a delay of several weeks before the MDH receives a record. The redesigned system will encourage electronic filing of birth and death records. Hospitals will file birth records, and death records will be filed in two parts. Funeral homes will provide fact of death and demographic information, and physicians will file cause of death information.

Since 1993, the MDH has received birth records from hospitals electronically via the Electronic Birth Certificate (EBC) software. This system allows a paper process for the civil registration portion of the birth record. With EBC, the quality of the data is improved, and electronic transmittal time is a fraction of the weeks or even months it takes to receive the information manually. One goal of the proposed system is to eliminate the paper process for the civil registration portion.

FRAUD PROTECTION

To improve fraud protection, the automated system will utilize prenumbered security paper to print certified copies of birth and death certificates in a standard format. The numbered security paper will allow tracking of birth and death certificates. If Immigration and Naturalization Services, a passport agency, or another agency suspects fraudulent use of a certificate, the MDH or a county registrar will be able to verify when, where, and to whom the certified copy was issued. Death records will be matched to birth records to ensure that the birth record of a deceased person cannot be used to establish

a false identity. Additionally, to help prevent Social Security check fraud, the MDH will report all deaths to the Social Security Administration within 48 hours.

CUSTOMER SERVICE

Electronic technology will help improve services to the general public. For example, a citizen may need a certified copy of his or her birth certificate to obtain a driver's license or passport or to verify citizenship. A certified copy of a death certificate may be needed to close a bank account or to collect life insurance. Currently, the citizen must purchase a birth or death certificate from the county where the birth or death occurred, or from the MDH Minneapolis office.

The new system will enable local registrars in county and city offices to issue birth and death certificates for births and deaths that occurred anywhere in Minnesota. The system will also increase the efficiency of the amendment process, so that simple errors such as misspellings can be corrected quickly and easily.

Parents who request a Social Security number for their baby through the birth registration process will benefit from increases in efficiency and diminished lag time between the birth and when the MDH receives the birth information. Now that Social Security numbers for dependents are required on income tax forms, this service is especially important and timely.

To provide services at the optimum time, schools and public health agencies need accurate birth information as soon as possible after a birth. Public health agencies use birth record information for identification and follow-up of high-risk births. The public health laboratory uses these records to ensure metabolic testing on all newborn infants, and schools use them to meet census requirements and provide new parents with information about early childhood and parent education programs.

SECURITY ISSUES

The MDH will ensure the security of the electronic system and prevent unwarranted access to protected data by using technology such as firewalls, user authentication, and data encryption during transmission. The Minnesota Office of Technology and the MDH are developing information security policies, and the Minnesota Historical Society has developed standards for a trustworthy system that apply to both paper and electronic records.

PHYSICIANS AND ELECTRONIC VITAL RECORDS

The MDH is committed to working with all providers of birth and death data—physicians, hospitals, and funeral homes—to facilitate use of the automated system, without additional expense to the provider. MDH field representatives surveyed hospitals and physicians' offices and clinics to learn more about how birth and death records are currently processed, what computer resources they have, how providers prefer to participate in developing the system, and how providers prefer to access the new system.

The participation of the medical community in pro-

Vital Statistics Redesign Project

The Minnesota Department of Health's Vital Statistics Redesign Project, which began in 1997, is a five-year effort to encourage electronic collection and reporting of birth and death records in the state. Objectives of the project are: 1) to improve data quality and timeliness; 2) to improve fraud protection; 3) to improve customer service; and 4) to improve data processing efficiency.

The major components of the project are:

- **Issuing birth and death certificates**—the MDH and county and city registrars connect to a centralized database to issue certified birth and death certificates in a standard format.

- **Electronic birth and death records**—Birth and death records are filed electronically; for death records, funeral homes provide fact of death and demographic information, and physicians provide cause of death information.

- **Historical records**—The MDH and local registrars put birth records from 1935 to the present and death records from 1997 to the present in the centralized database and create an index for death records from 1908 to 1996.

The project timeline is as follows:

1999—Development and beta testing of system;

2000—Pilot projects and full-scale implementation by December 31, 2000;

July 1, 2001—Statewide implementation of a standard format for birth and death certificates.

MDH representatives are surveying hospitals and physicians to learn more about how birth and death records are processed, what computer resources they have, how providers prefer to participate in developing the system, and how they prefer to access the new system.

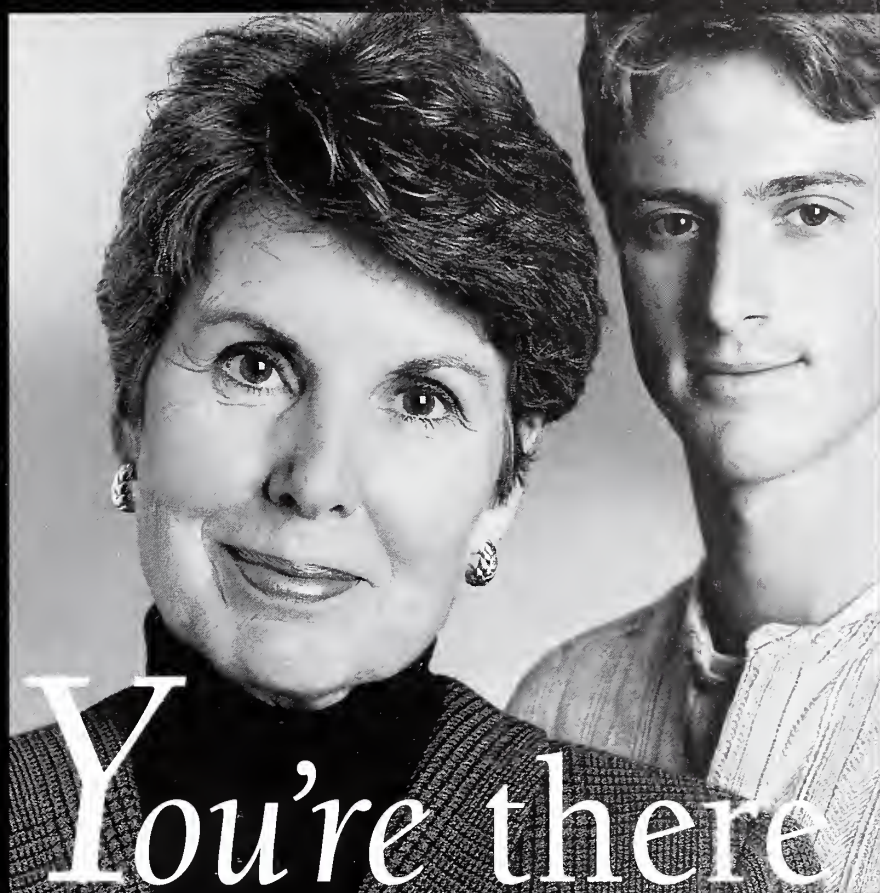
viding medical data on birth and death records is essential to the MDH. In the past, a physician's signature on birth and death certificates was a way to ensure this participation. As we move toward a paperless system, we will explore other ways to ensure that medical data is provided by qualified medical personnel. For example, a physician could enter medical information directly into the system or delegate data entry to other staff. The physician could complete and sign a system input document that could be kept in the patient's medical record or forwarded to the MDH. The MDH is open to different options.

As we move ahead with an electronic system, the MDH is working with the Minnesota Historical Society to develop a plan for keeping historical birth and death records. Tentative plans include transferring death records

more than 40 years old to the historical society. It is likely that birth records would not be transferred until the records are 100 years old. **MM**

Sharon Hammer is assistant director of the Center for Health Statistics, Community Health Services Division of the Minnesota Department of Health and project manager of the Vital Statistics Redesign Project.

If you would like to participate in the electronic records survey process or if you have comments and suggestions, contact Sharon Hammer, Center for Health Statistics, Minnesota Department of Health, P.O. Box 9441, Minneapolis, Minnesota 55440-9441, 612/676-5058, or by e-mail: sharon.hammer@health.state.mn.us.



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Malpractice Risks Online

Advances in communication technology bring new concerns about malpractice.

Debra McBride, R.N., J.D.

A diabetic patient e-mails his physician a spreadsheet of weekly blood sugars, and the physician e-mails back suggested modifications to the patient's regimen.

An internist maintains a Web site where a patient can read her latest patient newsletter, find information about her clinic and its staff, e-mail health-related questions, and access links to other medical Web sites.

A chat room on an Internet service hosts a regular "Ask the Specialist" forum; different physicians staff the site, fielding questions from around the country related to their various fields of expertise.

We in the health care field are familiar with the traditional elements of medical malpractice: You owe a duty of reasonable care to your patients; if you breach that duty and harm results from the breach, your patient may sue you for malpractice and possibly recover money damages. But what about the latest twist on malpractice, brought about by practicing medicine in cyberspace?

The American Medical Association's definition of "telemedicine" is quite broad. If you are using the telephone, fax, e-mail, or Internet in your practice, you are practicing telemedicine. Advances in telemedicine have changed the way physicians relate to patients and how patients are treated. Have those advances changed your malpractice risks?

TELEMEDICINE LIABILITY

A threshold liability question is

whether a cyberspace encounter establishes a physician-patient relationship. A relationship must exist for a patient to sue for malpractice. The practice of telemedicine, in which physician and patient may never see each other, raises the question: Is there such a thing as a virtual physician-patient relationship?

Malpractice cases have arisen in which a relationship between physician and patient was found to exist although they had never met. For example, pathologists may not have directly examined or met patients, but through interpretation of tissue samples, they may have established a physician-patient relationship. Courts have also ruled that radiologists who interpret x-rays have a physician-patient relationship.

To date, there have been no statutes or cases defining whether cyberspace contact establishes a physician-patient relationship. If a telemedicine encounter does establish such a relationship, then malpractice liability risks arise.

E-MAIL COMMUNICATION WITH PATIENTS

Some physicians are turning to e-mail to monitor patients, answer non-emergency questions, consult with colleagues, and provide medical advice. More like the telephone than traditional mail, e-mail is a convenient and fast means of communicating that avoids the "telephone tag" syndrome. In a poll conducted last year by Midwest Medical Insurance

Company, only 4 percent of respondents said they use e-mail to communicate with patients. Twelve percent use it to communicate with other providers, 32 percent maintain a Web site, and 24 percent have computerized medical records. As more and more patients and physicians go online, these numbers will increase.

Using e-mail to communicate with patients gives physicians the flexibility of answering questions when they have adequate time to give a considered response. Automatic documentation of the information exchanged is possible, removing any doubt as to what was asked and what was answered. Patients often feel more comfortable asking routine, non-emergency health questions via e-mail rather than coming in for an "unnecessary" appointment or trying to contact their doctor by telephone.

While e-mail has many advantages for physicians pressed for time and burdened by heavy patient loads, there are risks to consider. Confidentiality of the information is the most obvious and inherent risk of communicating patient information by e-mail. Whether you are consulting with a colleague or responding to a patient inquiry, someone other than the intended recipient may have access to the information. If you are encouraging patients to contact you electronically, make sure they know that the information might not be secure. Encryption software is a security method that can help protect patient information. ➡

You should always place a copy of any e-mail correspondence to or about a patient in the patient's medical record. If the record is electronic, make sure that a copy of the e-mail is attached. If a malpractice claim arises, the documentation of the exchange may be critical to your defense. You can be certain that your patients keep copies of your e-mails, but you can't be certain that their copies will be unaltered, by the patient or by someone else.

Another risk of using e-mail to communicate with patients is the tendency to be less formal. Recipients may misinterpret your casual comments or jokes. A carelessly written e-mail may look unprofessional in the courtroom; consequently, such unprofessional documentation may imply unprofessional treatment and hurt your defense in a malpractice claim.

E-MAIL CONSULTATION

While communicating with patients via e-mail poses certain risks, there

are also risks when consulting with another physician electronically. Documentation of the consult remains crucial and, again, copies should be placed in the patient's medical record. Risk also exists if you are the consulted physician. Similar to a curbside consult, if you provide specific medical advice to a fellow physician regarding a patient's care and treatment, you may be drawn into a medical malpractice claim by the patient even if you never knew the patient's name.

To reduce your risk, retain documentation of all consulting opinions, even if informally sought. It is not necessary to start a chart on a patient you haven't seen (or whose name you may not even know), but keep a file with copies of all opinions in case an issue ever arises. Physicians who are seeking your informal consult are most likely documenting that they sought and followed your advice regarding treatment; if that physician is sued, you may be brought into the claim as a consulting provider. With-

out a record of the advice you gave, you will be defenseless.

WEB SITES

More and more physicians and groups are establishing Web sites as a means of advertising and providing information and education to patients. Web sites that are just informational and educational pose far fewer risks. Much like a published textbook, the medical education information posted on your Web site can be read by anyone. Even if a reader relies upon it, it is not considered "giving treatment advice."

Some physicians establish links to other pertinent Web sites. Some physicians' Web sites have mechanisms for patients to e-mail physicians directly from the site or for nonpatients to ask medical questions. Here the risks are more apparent and similar to those involving e-mail. Treatment advice given to nonpatients could potentially create a physician-patient relationship; to prevent that risk, avoid advising nonpa-

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Chat rooms, available through a variety of online services, are potentially risky forums for providing medical advice. While general health education is appropriate and useful in such arenas, the physician who participates in chat rooms risks being drawn into a treatment recommendation that may create an unwanted relationship.

OTHER RESOURCES

In 1998, the American Medical Informatics Association published "Guidelines for the Clinical Use of Electronic Mail with Patients."¹ This information is also available at www.amia.org.

However you use cyberspace in your practice, be sure to use caution to protect your patients' confidentiality and protect yourself from malpractice. Adopt appropriate guidelines for using this communication technology and then make sure that you adhere to those guidelines.

MM

Debra McBride is the assistant vice president of risk management at Midwest Medical Insurance Company, a physician-owned malpractice insurer covering physicians, clinics, and hospitals in Minnesota, Iowa, North Dakota, South Dakota, Nebraska,

Wisconsin, and Illinois. A lecturer and author, she advises physicians on a variety of risk management issues.

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REFERENCES

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A Smarter Computer

Technology enthusiast Ray Kurzweil presents a primer on the state of artificial intelligence in "The Age of Spiritual Machines."

Reviewed by Charles R. Meyer, M.D.

The first rule of computers is: Computers are dumb. Ask anyone who has mistyped one character in a DOS command, told Windows to save a document with an "illegal" name, or put a "\" instead of a "/" in a Web address. Computers do exactly what you tell them to do, and if you tell them to do the "wrong" thing, they do it. Current generations of PC software have more "Do you really want to do that?" warnings, but the computer user still has to do the thinking.

Not for long, says Ray Kurzweil, developer of one of the first voice recognition systems and author of "The Age of Spiritual Machines" (Viking Press, 1999), a futuristic odyssey into the potential of artificial intelligence. Kurzweil has been in the prediction business at least since 1990, when he wrote "The Age of Intelligent Machines" (MIT Press, 1992), and he stakes out his credentials in the current book by recalling his prescient hunches from 1990, such as the 1998 defeat of the world chess champion by a computer. He was off on the date by only three months. "The Age of Spiritual Machines" is more than a crystal ball for nerds, however. It is a primer on the current state of artificial intelligence (AI) technology.

Like any good primer, Kurzweil's book starts at the beginning—in this case, the very beginning, the Big Bang. He quickly moves from the primordial ooze through human evolution, charting the progress of knowledge and technology. Past technologies

WHEN COMPUTERS EXCEED
HUMAN INTELLIGENCE

THE AGE OF SPIRITUAL MACHINES

RAY KURZWEIL
AUTHOR OF THE AGE OF INTELLIGENT MACHINES

have changed human evolution; current and future technologies will steer evolution, he argues. "The emergence of technology was a milestone in the evolution of intelligence on Earth because it represented a new means of evolution recording its designs. The next milestone will be technology creating its own next generation without human intervention," he writes. This is Kurzweil's core theme—machines will think for themselves, alter themselves, and, eventually, reproduce themselves—a vision worthy of H.G. Wells.

Indeed, cynics would charge that AI is and always will be Wellsian science fiction. Kurzweil acknowledges AI's unrealized past potential, like the shelved LISP language, which was supposed to program computers

to think, and Heathkit's primitive HERO robots, which amounted to glorified remote-control toys. But he points to evidence of AI's achievements, including chess champion Deep Blue, computerized EKG reading, military targeting techniques, and computerized stock trading. And with the ongoing progress in AI tools, Kurzweil contends, the sky's the limit.

The basic tools in the AI armamentarium are recursion, neural nets, evolutionary algorithms, and intelligent destruction of information. With recursion, a computer program produces an answer, then circles back through the program again to create an expanding tree of possibilities and prune that tree down to the best possibility. Deep Blue depended on recursion to decide the next chess move. Neural nets are computer simulations of the human neuronal web. They can "learn" pattern recognition and refine their accuracy. Evolutionary algorithms program hundreds of different, even random, ways to solve a problem such as stock investing, then reject the solutions that don't work. All of these tools involve the crucial characteristic of intelligence—the rejection of irrelevant, needless, or wrong information.

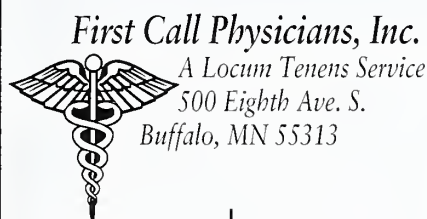
After these basic AI lessons, Kurzweil launches into an expansive tour of the future at mileposts 2009, 2029, and 2099, charting the increasingly blurred distinction between human and machine. His time machine includes a discussion of future comput-

er use in the arts, education, sex, and medicine. He punctuates each chapter with an imaginary, sometimes tedious dialogue between the author and an evolving being, Molly, who sounds very human in 1999 and very machine in 2099.

Will Kurzweil's predictions come as close to reality in 2009 as they did in 1998? He has an engineer's blindness to the fallibility of human-designed devices and an inventor's "gee-whiz" taste for technology. But voice recognition today is light years ahead of its forebears of just five years ago, and Deep Blue's father and grandfather didn't even come close to the abilities of minor chess masters.

The father of AI is Alan Turing, an engineering visionary who devised the Turing Test in 1950, still seen as the gold standard for AI machines. In the Turing Test, a blind human converses with another human and a computer. If the blind human can't tell the difference, the computer passes the test. In Kurzweil's future, post-Turing machines will not only talk and think but also feel like humans. **MM**

Charles Meyer is editor-in-chief of Minnesota Medicine.



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A P R I L 1 9 9 9

April 8-9 **Ob/Gyn Update** Institute for Medical Education—HealthPartners; Holiday Inn East, St. Paul, MN. CONTACT: Sharon Kopp, 640 Jackson Street, St. Paul, MN 55101; 651/221-3223.

April 11-16 **Advanced Management Program for Healthcare Executives** The University of Minnesota, Carlson School of Management, Executive Development Center in partnership with Mayo Clinic; Mayo Clinic, Rochester, MN. CONTACT: Kay Kenitz, Mayo Clinic, International Education, 200 First Street SW, Rochester, MN 55905; 507/284-8399.

April 16 **15th Annual Heart Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention Center, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Mail Drop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

April 16-17 **Osteoporosis: A Clinical Perspective** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

April 16-17 **Gastroenterology and Nutrition for the Primary Care Physician** Children's Hospitals and Clinics; Madden's Resort, Brainerd, MN. CONTACT: Betsy Julius, Medical Education, Children's Hospitals and Clinics, 2525 Chicago Avenue S, Minneapolis, MN 55404; 612/813-5884.

April 16-17 **Annual Meeting of the North Central Chapter Infectious Diseases Society of America** University of Minnesota; Hilton Hotel, Minneapolis/St. Paul Airport. CONTACT: Mary Majerus, Division of Transfusion Medicine, Hilton 210, Mayo Clinic, 200 First Street SW, Rochester, MN 55905; 507/284-3989.

April 17 **Getting to the Heart of the Matter** Mayo Continuing Nursing Education; Kahler Hotel, Rochester, MN. CONTACT: Mayo Continuing Nursing Education, Eisenberg S-41, 200 First Street SW, Rochester, MN 55905; 800/545-0357.

April 22-23 **Spring Refresher** Minnesota Academy of Fam-

ily Physicians; Hyatt Regency Hotel, Minneapolis, MN. CONTACT: Minnesota Academy of Family Physicians, 600 South Highway 169, Suite 1680, St. Louis Park, MN 55426; 612/542-0130 or 800/999-8198.

April 22-24 **Hip and Knee Reconstruction: An Update** Mayo Foundation; The Pointe Hilton at Squaw Peak, Phoenix, AZ. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

April 24 **HealthEast's 3rd Annual Conference on Integrative Medicine: A Scientific Session on Complementary & Alternative Tools in Primary Care** HealthEast Office of Research and Medical Education; Prom Banquet Center, Woodbury, MN. CONTACT: Annette Anderson, HealthEast Office of Research and Medical Education, 1700 University Avenue, St. Paul, MN 55104; 651/232-5130.

April 30 **Fifth Annual Emerging Infections in Clinical Practice** University of Minnesota; Hyatt Regency Minneapolis, Minneapolis, MN. CONTACT: Office of Continuing Medical Education, University of Minnesota, 107 Radisson Hotel Metrodome, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

M A Y 1 9 9 9

May 4-7 **Sixth International Surgical Pathology Symposium** Mayo Medical Laboratories; Hotel Inter-Continental, Prague, Czech Republic. CONTACT: Julie McAdams, 200 First Street SW, Rochester, MN 55905; 507/284-8599.

May 7 **Pediatric Update** Dakota Heartland Health System; Ramada Plaza Suites, Fargo, ND. CONTACT: Michelle Anderson, 1720 University Drive S, Fargo, ND 58103; 701/280-4581.

May 21 **Poisonous Plants Symposium** Hennepin County Medical Center; Pillsbury Auditorium, HCMC, Minneapolis, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

J U N E 1 9 9 9

June 16-18 **63rd Annual Advances in Breast, Endocrine, and Cancer Surgery Course** University of Minnesota Medical School, Department of Surgery; Willey Hall, University of Minnesota, Minneapolis, MN. CONTACT: Office of Continuing Medical Education, University of Minnesota, 107 Radisson Hotel Metrodome, 615 Washington Avenue SE, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636 or fax 612/626-7766.

June 18 **Current Topics in Brain Injury Rehabilitation** Mayo Continuing Nursing Education; Mayo Medical Center, Siebens Medical Education Building, Rochester, MN. CON-

TACT: Mayo Continuing Nursing Education, Eisenberg S-41, 200 First Street SW, Rochester, MN 55905; 800/545-0357.

June 23 **Infection Control Lecture** Hennepin County Medical Center; HCMC Pillsbury Auditorium, Minneapolis, MN. CONTACT: Continuing Medical Education, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415; 612/347-2075 or 888/263-4262.

J U L Y 1 9 9 9

July 18-24 **Mayo Clinic Internal Medicine Certification and Recertification Board Review 1999** Mayo Foundation; Mayo Civic Center, Rochester, MN. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 28-31 **Mayo Interventional Cardiology Symposium** Mayo Foundation & Society for Cardiac Angiography and Interventions; Silverado Country Club & Resort, Napa Valley, CA. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

A U G U S T 1 9 9 9

Aug. 15-20 **Mayo Clinic Review of Women's Health Care** Mayo Foundation; Honolulu, HI. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

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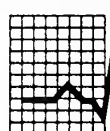
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Sept. 16-18 **62nd Annual Colon and Rectal Surgery: Principles and Practice Course** University of Minnesota; Minneapolis Hilton Hotel and Towers, Minneapolis, MN. CONTACT: Cynthia Iverson, 2550 University Avenue W, Suite 313N, St. Paul, MN 55114; 651/312-1556.

Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

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Your Voice

It's Your Choice

James Kaufmann, Ph.D.

Finding your voice is a fundamental challenge you face as a writer. It's an important matter to consider, for the question, "How do I want to sound on paper?" is not far removed from, "Who do I want to *be* on paper?"

Some situations give physicians considerable leeway in selecting the voice they would like to project. Situations that call for the author's personal opinion tend to allow, and even encourage, a distinctive style. Editorials, letters to the editor, and essays give physicians the opportunity to write in their own unique voice.

Other situations, however, are more highly governed by convention, and allow physicians less freedom in regard to voice. In these situations, projecting an idiosyncratic voice would be a rhetorical misstep, for it would divert the reader's attention from the tale to the teller. In research articles, textbook chapters, and grant applications, voice (like format) is more constrained.

These latter situations are particularly challenging to physicians seeking to project a voice that, if not distinctive, is at least clear. Many physicians who write in an admirably plain manner in less formal communications take on a different voice when writing for more ambitious purposes.

WHY DO DOCTORS WRITE LIKE THAT?

For years, articles (usually physician-authored) bemoaning the state of medical writing have appeared in the

medical literature. The complaints are familiar to anyone who pays attention to medical writing as writing. They include offenses against language, such as the heavy use of jargon; the misassembly of sentences; the abuse of passive voice; and the seeming reluctance to make a direct statement. Upcoming columns will discuss particular problems, but for now, it's important to understand that such problems are merely symptoms of an underlying problem with voice.

By no means is all medical writing "bad." Much of it is very good. But the bad stuff—how did it come to be that way? The literature provides a variety of answers, perhaps none more provocative than that offered by physician-turned-writer Michael Crichton. In his now-classic article "Medical obfuscation: structure and function," Crichton supplied a list of problems found in selected journal articles, then gave his opinion as to their origin: "If the authors of these papers really wanted to be understood in a straightforward way, they would write simply and express their ideas in the clearest, most unambiguous forms they could manage. Instead, they do just the opposite. What they are communicating is their profound *scientificness*, not whatever the title of their paper may be."

The brouhaha incited by Crichton's assertion that physicians were writing to impress, not express, drew all manner of explanations for problems in medical writing. His sympa-

thizers also accused their fellow physicians of obfuscating in order to hide ignorance or muddled thinking. Others, however, ascribed poor writing to inadequate writing instruction, the circumstances in which physicians often must write, and the impact of science on language.

THE POWER OF CULTURE

Problems in medical writing have multiple origins. In my view, however, the single greatest factor (given the typical physician's lack of training in and time for writing) is the unconscious or half-conscious emulation of the culture's collective voice, as modeled in the literature. Through your reading of the literature you have probably intuitively constructed a template for its sound. When you write, you automatically trace the template to reproduce that sound. The problem is it's an imperfect template of an imperfect sound. And if you trace that template unthinkingly, as many physicians do (while attending to writing problems not related to voice), you surrender a precious part of your identity—your voice—to your culture.

WHAT YOU CAN DO

Consciously attend to who you are on paper. Stay tuned; I'll show you how. MM

James Kaufmann is director of the Office of Communications, Hennepin Faculty Associates, in Minneapolis.

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Everything's Coming Up Herbs

It's spring and it's not just the tulips that are growing. In the field of medicine, a therapeutic movement is blooming—and traditional medicine hasn't decided whether it's a flower or a weed. Most doctors

aren't sure that alternative, or complementary, medicine complements what they do or that they or their patients need an alternative. This month's *Minnesota Medicine* explores some of the thornier issues related to medicinal herbs.

Alternative herbal medicine is everywhere. Deep pink echinacea blossoms bedeck *Time's* cover.

Every other patient, it seems, is on St. John's wort, saw palmetto, or ginkgo. Echinacea-fortified juices have appeared at Byerly's. Spurred by a distrust of technology, the allure of the "natural," or the perception that they are taking control of their health, patients are flocking to GNCs. Seen from this perspective, the growth of herbal alternative medicine might be merely a misguided consumer fad destined to go the way of Beanie Babies.

But consider this: The November 11, 1998, *JAMA* was devoted to alternative medicine, and not for the purpose of condemning it. Hospital pharmacy and therapeutic committees are adding herbs to their formularies. A new newsletter, *Alternative Medicine Alert*, offers "the clinician's guide to alternative therapies." Maybe there's something to this trend.

Traditional medicine's critique of alternative medicine was articulated by Marcia Angell, M.D., and Jerome Kassirer, M.D., in a September 17, 1998, *NEJM* editorial in which they charged that "scientifically untested" and "anecdotal" alternative medicine "distinguishes itself by an ideology that largely ignores biological mechanisms, often disparages modern science, and relies on what are purported to be ancient practices and natural remedies."

Letters to *NEJM* didn't universally applaud Angell and Kassirer's editorial. Letters defending alternative medicine echo themes found in our current *Minnesota Medicine* and elsewhere. There is scientific support for certain herbal medicines. In many cases, lack of support is the result of scientific medicine prejudging and blindly dismissing herbal claims. And medical practitioners are deluding themselves when they claim that they only prescribe remedies that are scientifically proven by the hallowed standard of randomized studies. (A recent issue of the American College of Physicians' *Journal Club* attempted to bridge the empirical gulf between alternative and traditional medicine by calling for the widespread application of evidence-based medicine to alternative therapies.)

Common ground for traditional and alternative medicine is platted by an unlikely advocate for alternative medicine, legendary Yale gastroenterologist Howard Spiro, who analyzes medical science and art in a recent book, "The Power of Hope: A Doctor's Perspective." He chastises scientist physicians who "expect to find an answer to every problem if they only look hard enough with the right instrument" and who "look, but rarely listen." Disease is the objective answer they are seeking; illness is what patients experience. Spiro says scientific medicine has belittled the power of belief, the placebo effect, in treating illness. In randomized studies, differences between control and treatment groups are assumed to be caused by a drug or operation. Belief in the physician or the treatment is usually ignored.

A recent novel, "The Law of Similars," portrays a grieving state prosecutor, beleaguered by nagging physical complaints since his wife's death. In desperation, the man visits an attractive, female homeopath. His response to her arsenic-based cure rises, and falls, as his infatuation with her sweetens, then sours, when the homeopath is implicated in the death of a patient. The lesson is not the truth or fiction of homeopathy, but the truth that belief aids healing. And that is a lesson for all medical practitioners, traditional and alternative alike.

—Charles R. Meyer, M.D., Editor-in-Chief



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So talk to your doctor, especially if you have risk factors for heart disease, like smoking, diabetes, high blood pressure or high cholesterol; or if you're pregnant, nursing or taking medications.

1. Source: Physician Drug and Diagnosis Audit (PDDA), November 1996–October 1997, Scott-Levin, a Division of Scott-Levin, PMSI, Inc.

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Patient Information about IMITREX Tablets and IMITREX Nasal Spray for migraine headaches.
Generic names: sumatriptan succinate, sumatriptan

Please read this summary of information about IMITREX before you talk to your doctor or start using IMITREX. No summary can take the place of a careful discussion between you and your doctor. Only your doctor has the medical training and the complete prescribing information necessary to determine if this medicine is right for you. Once you read this summary, you should discuss with your doctor whether IMITREX is appropriate treatment for you and ask any questions you may have.

WHAT IS IMITREX?

IMITREX is the brand name of sumatriptan, a drug intended to relieve your migraine headaches but not to prevent or reduce the number of migraine headaches you experience. IMITREX should be used only to treat an actual migraine attack. IMITREX can be obtained only with a doctor's prescription and should be used by adults only after discussing the choice with your doctor, taking into account your individual preferences and medical circumstances.

HOW DOES IMITREX WORK?

How IMITREX works is not completely understood. IMITREX is a 5-HT₁ agonist that seems to relieve migraine headaches by acting like a brain chemical called 5-hydroxytryptamine, causing some blood vessels in the head that are swollen during a migraine to constrict (that is, to become smaller), which helps relieve migraine headache.

IMPORTANT SAFETY CONSIDERATIONS

Although the vast majority of patients who have taken IMITREX have not experienced any significant side effects, some patients have experienced serious heart problems and, rarely, considering the extensiveness of IMITREX use worldwide, deaths have been reported. In all but a few instances, however, serious problems occurred in patients with known heart disease, and it was not clear whether IMITREX was a contributing factor in these deaths.

Serious events relating to the blood vessels in the head (e.g. brain hemorrhage, stroke) have been reported in patients who were taking IMITREX. Some of these have resulted in death; however, the relationship of IMITREX to these events is uncertain. In a number of these cases it appears possible that patients were not experiencing a migraine but rather an event due to blood vessel disease in the head. IMITREX was given in the incorrect belief that the person may have been suffering a migraine. Therefore, you should not take IMITREX if the headache you are experiencing is different from your usual migraine attacks. People who suffer from migraines may be at increased risk of certain blood vessel events in the brain (e.g., hemorrhage, stroke, or transient ischemic attack.)

Ask your doctor about these and additional safety considerations.

WHO SHOULD NOT TAKE IMITREX?

Some types of migraine headaches should not be treated with IMITREX, and some patients should not take IMITREX because of an increased risk of serious side effects.

- If you have had a heart attack, stroke, transient ischemic attacks, peripheral vascular disease (including ischemic bowel disease or Raynaud's syndrome), or any sort of heart disease or symptoms that are associated with constriction of blood vessels, such as ischemic heart disease, angina, or coronary artery vasospasm, you should not use IMITREX.
- If you have uncontrolled high blood pressure, you should not use IMITREX.
- If you are taking certain drugs for depression, talk with your doctor. IMITREX should not be used if you take or have taken within the last 2 weeks, monoamine oxidase inhibitors (MAOIs).
- Your doctor will discuss with you the type of migraine headaches you have. If you have hemiplegic or basilar migraine, you should not take IMITREX. IMITREX should be used only in patients who have been diagnosed by a physician as having migraine with or without aura.
- Tell your doctor about any other medications you are taking. If you are currently taking any migraine medications that include ergot alkaloids, such as methysergide or dihydroergotamine, or other 5-HT₁ agonists, do not take IMITREX within 24 hours of taking these medications.
- Do not take IMITREX if you are allergic to sumatriptan or any of the ingredients in IMITREX.

WHAT MEDICAL PROBLEMS OR CONDITIONS SHOULD I DISCUSS WITH MY DOCTOR?

- If you have risk factors for heart problems, you should tell your doctor. Your doctor should examine you for heart disease to see whether IMITREX is appropriate for you. Risk factors include high blood pressure, high cholesterol, obesity, diabetes, and smoking. Other patients with risk factors for heart disease are women who are past menopause (whether natural menopause or menopause resulting from surgery), men over 40 years old, or patients with a family history of heart disease. If you have risk factors and your evaluation for heart disease is satisfactory, your doctor may ask you to take the first dose of IMITREX in the doctor's office.
- Tell your doctor if you have chest pains, shortness of breath, or irregular heart beats.
- Tell your doctor if you are taking selective serotonin reuptake inhibitors (SSRIs).
- Tell your doctor if you have a history of epilepsy or seizures.
- Tell your doctor if you have liver or kidney problems.
- Tell your doctor if you have ever had to stop taking any medication because of an allergy or other problems.

USE OF IMITREX DURING PREGNANCY AND BREAST-FEEDING

Do not take IMITREX if you are pregnant, think you may be pregnant, are trying to become pregnant, are not using adequate birth control methods, or are breast-feeding, unless you have discussed this with your doctor.

HOW TO USE IMITREX TABLETS OR NASAL SPRAY

Tablets: For adults, the usual dose is a single tablet taken whole with fluids. A second tablet may be taken if your symptoms of migraine come back or if you have partial response to the first dose, but no sooner than 2 hours after taking the first tablet. For a given attack, if you have no response to the first tablet, do not take a second tablet without first consulting with your doctor. Do not take more than a total of 200 mg of IMITREX Tablets in any 24-hour period.

Nasal Spray: For adults, the usual dose is a single spray administered into one nostril. If your headache comes back, a second nasal spray may be administered anytime 2 hours after administering the first spray. For a given attack, if you have no response to the first nasal spray, do not take a second nasal spray without first consulting your doctor. Do not administer more than a total of 40 mg of IMITREX Nasal Spray in any 24-hour period. The effects of long-term repeated use of IMITREX Nasal Spray on the surface of the nose and throat have not been specifically studied.

The safety of treating an average of more than four headaches in a 30-day period has not been established.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF USING IMITREX?

Do not rely on this summary alone for information about side effects. Your doctor can discuss with you a more complete list of side effects that may be relevant to you.

The most frequently seen side effects are tingling and warm/cold sensations with IMITREX Tablets and bad/unusual taste with IMITREX Nasal Spray.

- Some patients feel pain or tightness in the chest or throat when using IMITREX. If this happens to you, discuss it with your doctor before using any more IMITREX. If the pain is severe or does not go away, call your doctor immediately.
- If you have sudden or severe abdominal pain after taking IMITREX, call your doctor immediately.
- Shortness of breath; wheeziness; heart throbbing; swelling of the eyelids, face, or lips; or a skin rash, skin lumps, or hives happen rarely, but if they happen to you, tell your doctor immediately. Do not take any more IMITREX unless your doctor tells you to.
- Some patients have feelings of tingling, heat, flushing (redness of the face lasting a short time), heaviness, or a feeling of pressure after taking IMITREX. A few patients may feel drowsy, dizzy, tired, sick, or experience nasal irritation (Nasal Spray only). Tell your doctor about these effects at your next visit.
- If you feel unwell in any other way or have any problem that you do not understand after taking IMITREX, tell your doctor immediately.

WHAT SHOULD I DO IF I TAKE AN OVERDOSE?

If you have taken more medication than you have been told, contact either your doctor, a hospital emergency department, or the nearest poison control center immediately.

HOW SHOULD I STORE IMITREX?

Be sure to keep your medicine in an area that cannot be reached by children. It may be harmful to children.

IMITREX Tablets and IMITREX Nasal Spray should be stored at room temperature and do not require refrigeration. Do not store above 86° F (30° C) or below 36° F (2° C). Store away from heat and light. If your medication has expired (the expiration date is printed on the label) throw it away as instructed. If your doctor decides to stop your treatment with IMITREX, do not save any leftover medication unless your doctor tells you to do so. Throw it away as instructed.

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Corrections

Marion Kershner, P.H.N., M.S., Dianne Long, M.S., and Jon E. Anderson, Ph.D., authors of the article "Rural Aspects of Violence Against Women" (*Minnesota Medicine*, February 1999, page 41), inadvertently omitted these acknowledgments:

Our study was funded by a grant from the Allina Foundation. We appreciate the technical assistance we received from the University of Minnesota School of Public Health, Susan Gerberich, Ph.D., Laura Kochevar, Ph.D., Aparna Anderson, Ph.D., Mary Braddock, M.D., and Deborah Wingert, Ph.D. Significant contributions and support were also provided by David Olday, Ph.D., Gina Garding, and Ross Dierkhising.

East Meets West



PHOTO BY JOHN NOLTNER

at Hennepin County Medical Center

An M.D. and an herbalist are collaborating on a unique study of Chinese herbal medicine to treat the effects of hepatitis C.

By Miriam Karmel Feldman

At first glance, they seem an unlikely pair. One, Jeffrey H. Albrecht, M.D., is chief of the division of gastroenterology at Hennepin County Medical Center (HCMC). His clinical interest is in liver disease; his research, funded by a five-year grant from the National Institutes of Health, explores factors that control liver regeneration. He earned his M.D. from the University of Michigan in 1985, then completed his internal medicine residency and gastroenterology fellowship at the University of Minnesota.

The other, Ulrich (Uli) Beyendorff, L.Ac., Dipl.C.H., is a licensed acupuncturist and a diplomate of Chinese herbology who works at HCMC's Alternative Medicine Clinic. He completed his training in 1989 at the College of Acupuncture and Oriental Medicine in San Francisco. Later, he traveled to the China Academy of Traditional Chinese Medicine and the Chengdu College of Traditional Chinese Medicine to study oriental medicine, including the indications and contraindications of some 200 herbs and 100 herbal compound formulas.

Now Albrecht and Beyendorff are collaborating on the first systematic study in the United States to determine whether Chinese herbal medicine has any effect on patients infected with the hepatitis C virus (HCV), which has infected an estimated 3.9 million Americans. The short-term pilot project, which expects to enroll 40 subjects beginning this summer, is being conducted at HCMC and is funded by a National Institutes of Health grant to the Minneapolis Medical Research Foundation, which oversees all HCMC research. The project is part of a \$5 million grant to MMRF from the NIH National Center for Complementary and Alternative Medicine to study the efficacy of unconventional therapies for substance abuse and associated problems.

Bridging the Gap

"This project, using Chinese herbs for one of the largest epidemics facing Americans, is not only timely, but is exciting in terms of the relationship of biomedicine researching complementary medicine," says Patricia Culliton, director of the alternative medicine division at Hennepin Faculty Associates/HCMC. Culliton has wanted to bring together the two treatment approaches, but designing and funding such an enterprise proved more difficult than she anticipated.

The two approaches to treating illness are radical-

ly different, though not in the way one might suspect. The common perception is that Chinese medicine is plant-based. But many Western medicines also are derived from plants, notes Albrecht, who adds that the major difference in approaches lies in the methodology. While Chinese medicine practitioners—and there are 10,000 in the United States—rely on a tradition of learning and experience to discover effective medicines, Western-trained physicians demand placebo-controlled studies. This difference creates an interesting tension in the HCV study: each researcher, in deference to the other, has had to compromise a bit.

"In some ways, I'm preventing [Uli] from doing what he's trained to do," Albrecht says. "The Chinese tradition is to alter the medications on the fly, based on the patient's current symptoms." But in this study, everyone with HCV will take the same combination of drugs, a compound of 10 specially formulated herbs. Such adherence to rigid protocol runs counter to the traditional Chinese approach of one patient at a time.

While Western and Chinese aspirations may be similar, the treatment is different, Beyendorff says. In Western medicine, for example, anyone who has irritable bowel syndrome is likely to receive the same medication. In Chinese medicine, the treatment is

"The common perception is that Chinese medicine is plant-based. But many Western medicines also are derived from plants. The major difference in approaches lies in the methodology."

likely to vary. "We go about it in a different way. We say, 'Take out three of these herbs. Put back five of these,'" Beyendorff says. "You might have 12 people with ulcers and four different remedies. In Western medicine, all may be given Tagamet."

In that regard, conducting a placebo-controlled trial is a major shift for Beyendorff. But it's also a stretch for Albrecht, who now finds himself working in a field where scientific method is ad hoc at best. From a Western perspective, the field is a "mess," Albrecht says, noting that most background literature on Chinese medicine cannot be found in English-language journals, and there are few controlled trials. What's more, there is no standardization of herbal products and little quality control. (Preparations used in Beyendorff's clinic come from a Taiwanese manufacturer that uses exacting standards.)

A Common Goal

Neither Beyendorff nor Albrecht expects to discover a cure for HCV. "I'm not invested in this working or not

working," Albrecht says. "My hypothesis for this study is not that we're going to cure hepatitis. My hypothesis is that we'll improve symptoms in some people." Since the main symptom of hepatitis C is fatigue, the researchers will measure quality of life standards to test the effects of the herbal compound. As far as Albrecht is concerned, it would be an advance simply to find a treatment that eases suffering. The most promising current remedy, a combination of interferon and ribavirin, is expensive and at best cures only half of patients, says Albrecht. Still, he routinely offers the interferon-based therapy to his patients with HCV. Patients are considered for the herbal medicine study if they are unwilling or unable to take interferon or have failed treatment with interferon and ribavirin.

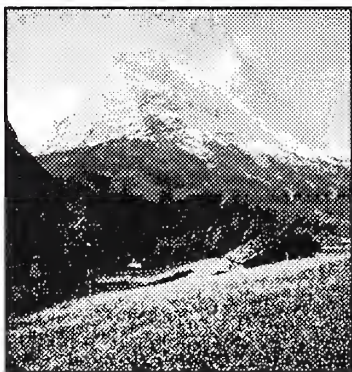
Beyendorff concedes that finding a cure for any virus, particularly in a pilot study, is unlikely. Like Albrecht, he hopes the compound will alleviate symptoms and reduce fatigue. That desire is completely in line with the aim of Chinese medicine—helping a person be happier and healthier.

In fact, that's what brings many patients to HCMC's Alternative Medicine Clinic. They have exhausted traditional treatment options and still don't feel better, Beyendorff says. Some are referred by doctors, though mostly for acupuncture, a procedure that is reimbursed by Medica, MHP, and some Blue Cross plans and that the medical establishment perceives as more benign than botanicals. But most of the clinic's patients have self-referred, seeking relief for everything from neck pain and hives to skin rashes and peripheral neuropathy. (The clinic does not treat cardiac and seizure conditions or carcinomas, although it will treat cancer patients for the side effects of chemotherapy and radiation.) In all of these cases, says Beyendorff, patients want the same thing: "They hurt and they want to feel better."

Beyendorff has been there. In college, he sought relief from pain through alternative treatment when conventional medicine didn't work. After injuring his back playing soccer in San Francisco's Golden Gate Park, he visited an orthopedist, who could do

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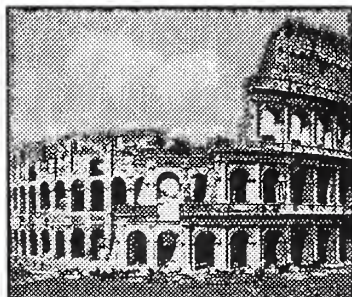
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nothing for his extreme pain because there were no structural problems. But an acupuncturist did provide relief, and Beyendorff's curiosity was piqued enough to drop his plans to be a high school teacher and pursue a career in alternative medicine instead. His interest was aided by a natural receptivity to other therapies, which he attributes to his upbringing in Germany, where taking plants for medicinal purposes is more commonplace than in the United States. He recalls drinking fennel tea for stomachaches when he was a child.

Continuing Collaborations

Beyendorff hopes the HCV study will lead to more East-West research collaborations, such as a study published in the November 11, 1998, *Journal of the American Medical Association*, which found that a standardized Chinese herbal formulation appeared to ease symptoms for 59 percent of patients with irritable bowel syndrome. He's also hopeful that the HCV study will help convince U.S. physicians of alternative medicine's benefits, something their colleagues in many other countries already accept. Today, for example, up to 80 percent of Japan's medical doctors use herbal medicine along with conventional treatments, and the history of using botanicals to treat liver disorders in Asia dates to A.D. 205 or earlier.

Albrecht knows that patients are interested in alternative remedies. He has patients who self-medicate with milk thistle (a European herbal remedy, which is different from Chinese medicine). He doesn't discourage the practice since he doesn't believe it is harmful, although he does not know if it helps. For now, Albrecht is willing to concede that Chinese and Western medicine may be complementary. "I'm trying to take an open mind and say, 'OK, let's study it.' I said to Uli, 'Give me your best single regimen.'"

Beyendorff came up with herbal compound 3AR, a formulation of 10 botanicals with names like *huang qi* and *chaihu*, which he picked for their abilities to boost the immune system, fight fatigue, improve circulation, protect the liver, and act as detoxifying and antimicrobial agents. All of the 3AR plants are widely used, have

a good toxicology profile, and work well in combination. Though it is doubtful that they are harmful, the study will look for adverse effects.

Albrecht alternates between skepticism and enthusiasm at finding himself part of such a study. "My reaction," he says, "is partly bemused." He also admits that the study offers an interesting and educational experience. "I'm glad that we're attempting this trial," he says, "because I think it's important to place the same rigorous testing standards on traditional medicines as we do on Western pharmaceuticals."

In the end, the success of the study may not be a matter of either/or. "The world gets too caught up in black and white," Beyendorff says. "The real stuff gets done in the middle." MM

For information on referring patients to this study, contact the Alternative Medicine Clinic at 612/347-6238.

Miriam Karmel Feldman is a free-lance writer living in Minneapolis.

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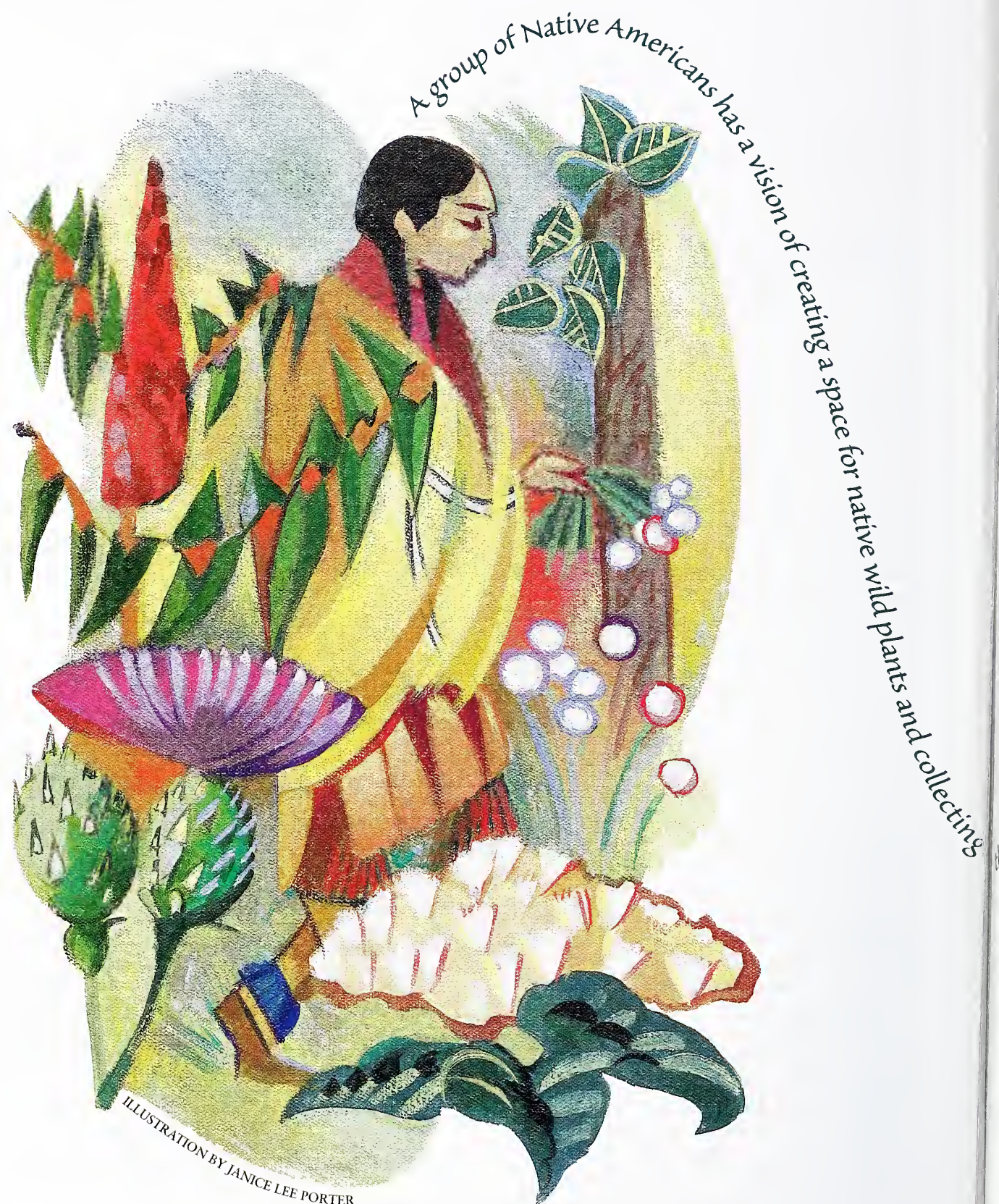
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The Dream of Wild Health Network



Many centuries ago, deep in the forests of what would become Minnesota, corydalis (turkey corn) grew in mossy glades, and the Ojibwe used it to ease their arthritis. At the edge of a pond, wild boneset poked up over the lowland, providing relief for the flu. Wild cherry bark was used in tea to cool fevers. In the vast oceans of waving prairie grasses, sage, wild purple coneflower, and milk thistle helped the Lakota prevent and treat many diseases, from colds to cancer. Rice, fish, fruit, and the lean meat of buffalo, deer, and smaller wild animals were staples in the diets of forest and prairie tribes. Native children played on the prairie by natural sweet leaf, used for burns and infections; yarrow, used for cuts and bruises; and gentian, used for fevers. Women celebrated their first menses and calmed any discomfort with red, blue, and white cohosh. Warriors hurt in battle or while hunting healed their wounds with sumac and wild geranium. Elders used basswood as a cardiac sedative and ironwood as a cancer remedy. They shared the ancient ways of living with younger tribal members so that they, in turn, could keep their families healthy and

care. They experience the extreme stress of poverty. Native people suffer from diabetes at a rate 232 percent greater than other populations in Minnesota. Men who once considered themselves warriors and providers suffer from the effects of the chemical substances that overtake their bodies and minds. Substance abuse is the primary cause of death for native men, at a rate 630 percent greater than in other populations. Children in native families face an epidemic of respiratory diseases, especially asthma.

The Dream of Wild Health Network is the vision of a group of Native Americans who founded and run Peta Wakan Tipi ("Sacred Fire Lodge" in the Lakota language) in St. Paul. Peta Wakan Tipi is a nonprofit, tax-exempt organization that for 12 years has provided transitional housing and support services for homeless, recovering alcoholic Native Americans. Our dream is to record the cultural wisdom of medicine people before that knowledge disappears. We will realize this dream by locating, videotaping, and

learning from medicine people and elders in the Midwest.

Another aspect of our vision is to collect and save native wild plants and seeds. Our immediate priority is to find five to 10 acres of land—ideally a diverse plot that encompasses open field, native prairie, marsh, and woods, with gravelly, sandy, and loamy soil. This land would be a permanent site for growing and preserving hundreds of native seeds, which we are gathering from elders and others. Our five-year goal is to become a Midwest Seed Saver organization, documenting each seed and plant through research and photographing each growing stage. We are looking for a site within a 30-minute drive of the Twin Cities so that the urban native population can easily participate in the project.

The Dream of Wild Health Network welcomes ideas, donations, and volunteers. Please call 651/646-8167.

MM

by Pat Deinhart



1 *Scabiosa Caucasica* 2 *Scabiosa atropurpurea*. 3. *Scabiosa graminifolia*. 4 *Valeriana rubra*
 5 *Valeriana Siberica*. 6 *Crucianella stulosa*

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Herbalism in Minnesota



What Should Physicians Know?

Gregory A. Plotnikoff, M.D., M.T.S., and Jonathan George, B.A.

Herbal medicine is a growing area of health care that demands physician attention. Here is a summary of the evidence from peer-reviewed literature about 10 of the most frequently purchased herbs in Minnesota.

Many physicians have been shocked by the explosive growth of interest in unconventional therapeutic agents available over the counter. Herbal medicines are sold as “dietary supplements” not only in health food stores, but also in most conventional pharmacies and grocery stores. Intense media attention has fueled interest in herbs and herbal “miracle cures.”¹ Since 1990, the U.S. market for herbal supplements has grown exponentially, to \$3.24 billion a year in 1997, with no sign of leveling off.²

While herbal remedies are the oldest and most widely used form of medicine in the world, American physicians have generally overlooked the medicinal properties of plant-derived substances. Many physicians may not realize how often they are actually prescribing a natural compound. Of the 150 best-selling prescription drugs, 86 contain at least one major active compound from natural sources. In addition to aspirin, digoxin, and antibiotics, plant-derived medications include numerous anticholinergic agents, anticoagulants, antihypertensives, and antineoplastic agents. Surprisingly, among the top 150 pharmaceuticals, only 35 plant species are represented, out of an estimated 10 million on the planet.³

Although more than 60 million Americans over age 18 are estimated to use herbal remedies, evidence suggests that most people use them after self-diagnosis and do not report their use to their doctors.^{2,4} Moreover, many physicians report that they cannot counsel patients on the use of herbal medicine from a scholarly, evidence-based perspective. Where, then, is the leadership in this area of health care? How do people obtain information? How accurate is the information? Are consumers basing their purchasing decisions on fully informed judgments?

Herbal medicine is an emerging area of health care that demands physician attention and academic leadership. In addition to public expectation, hospital formulary and drug-use committees increasingly will expect physicians to provide specific information on frequently used herbs in their discipline. The purpose of this article is to 1) inform physicians about the Food and Drug Administration’s regulation of dietary supplements; 2) address physician concerns regarding herbal toxicity; and 3) provide basic information from peer-reviewed literature on 10 of the most frequently used herbs in Minnesota.

This article does not seek to promote any unjustifiable use of herbs. Herbal medicines are infrequently as effective, or more effective, than prescription medications. This article supports patient advocacy by informing physicians about the strengths and weaknesses of 10 common over-the-counter herbal therapies that their patients may be using. Additionally, this article urges physicians to promote stronger consumer protections. Finally, given medicine's ethical imperative to advance

knowledge, we hope this article may stimulate innovative and necessary research.

Government Regulations

Prior to 1994 and the passage of the Dietary Supplement Health and Education Act (DSHEA), all prescription and over-the-counter (OTC) drugs from any source, including plants, had to be "clean, unadulterated, safe, effective, and manufactured in accordance with good manu-

Do You Know What Your Vietnamese Patients Are Taking?

A Survey of Herbal Use

By Candace Nguyen and Louis Tran

Vietnamese recipe for treatment of hypertension:

1 L. white wine

1 lb. fresh ground garlic

Pickle the garlic in the wine for two to three weeks—the longer the better.

Drink 1 to 2 tablespoons daily for three weeks or more to treat hypertension.

Over 1 million Southeast Asian refugees representing at least five major ethnic groups live in the United States, including more than 600,000 Vietnamese people.¹ In Minnesota, 9,424 Vietnamese were recorded in the 1990 census.²

In Vietnamese culture, health is just one facet of life in the universe, part of a unified, comprehensive scheme. Like nature itself, the human body operates in a delicate balance between two basic opposing elements: Am (Yin) and Duong (Yang), or male and female, or light and dark.³ Am and Duong elements have the connotation of "hot" and "cold," respectively, but these designations do not relate to temperature per se. For example, chocolate is considered "hot" but vegetable is considered "cold."

Vietnamese people believe that illness stems from the imbalance of hot and cold elements. Illness usually derives from an excess of hot or cold elements, so treatment aims to replenish the deficient element to restore balance. The treatment protocol usually involves herbal medicines. After listening to a patient's concerns and taking the patient's pulse, an herbalist will prescribe a "combination package," a mixture of herbs.

As herbal medicine use increases in the United States, the health care community is urgently seeking

more knowledge in this area. Unlike Western pharmaceuticals, herbs used by Southeast Asians are judged effective mostly based on traditional or anecdotal reports rather than clinical trials or studies. Because of the lack of literature in this area, we conducted a survey to assess herbal use by Vietnamese patients at the Community University Health Care Center (CUHCC) clinic over a six-month period. A Vietnamese interpreter at the clinic administered a questionnaire to patients. Survey questions covered demographic information, health information, and herbal use. Vietnamese herbal remedies are not the popular Western herbs such as St. John's wort or ginkgo. Rather, herbal medicines mentioned in this study are essential oils and teas made from infusions of fresh or dried plants. Some of the most common herbal medications are bitter melon, trai kho qua, ginger, ginseng, and garlic.

Patients surveyed ranged in age from 16 to 80. There were 33 female patients and 21 male patients. Thirty-nine of the 54 patients had lived in the United States for less than six years. Thirty-one percent of those surveyed considered themselves in poor health. Hypertension, diabetes, asthma, backache, arthritis, and mental health problems were the most commonly reported health conditions. Thirty-one patients (57%) stated that they or their family members have used herbs. Only six patients knew what their herbal medicines were used for. Ten out of 13 patients who answered this question described the herbal medicines they used as either "effective" or "very effective." Herbs were deemed ineffective by two patients, while one said she was unsure of their effectiveness. Types of herbal preparations reported were original

facturing practices." These terms were defined in the Food, Drug and Cosmetic Act of 1962. Until 1994, herbal remedies were regulated as drugs by the Food and Drug Administration (FDA), which reviewed and evaluated herbal therapies for safety and efficacy.

However, since 1994, herbal remedies in the United States have been recognized as dietary supplements and not as drugs or food. The FDA still regulates them, but under far less stringent standards than those under which

plant (3), tablet (4), powder (2), ointment/cream/patch (26), and combination package (11).

This study shows that Vietnamese patients at CUHCC integrate traditional beliefs and treatments to manage disease and illness. The increasing cultural diversity of the United States necessitates that health care professionals understand the value of cultural factors in health care use by Vietnamese people and other Southeast Asians. Many minority-culture patients presenting to a health care facility may be using herbal preparations. Clinicians who care for Vietnamese patients should be aware of these practices and should inquire about herbal use. Good patient outcomes require an understanding of both Western and traditional health practices.

Acknowledgments

We would like to thank Greg Plotnikoff, M.D., Penny Lepinski, Van-Anh Hoang, and Khiet Hoang Nguyen for making this study possible.

Candace Nguyen and Louis Tran are pharmacy students in the last year of the Doctor of Pharmacy program at the College of Pharmacy, University of Minnesota.

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pharmaceutical agents are regulated. Dietary supplements may carry a statement that "describes the role of a nutrient or dietary ingredient intended to affect the structure or function in humans" or that "characterizes the documented mechanism by which a nutrient or dietary ingredient acts to maintain such structure or function."⁵

No herbs are FDA-approved. They are commodities sold for "stimulating, maintaining, supporting, regulating, and promoting" health rather than for treating disease. As dietary supplements, herbs may not claim to restore normal function or correct abnormal function. Additionally, herbs may not claim to "diagnose, treat, prevent, cure, or mitigate." For example, the FDA allows the claim "helps promote urinary tract health," but not "improves urine flow in men over 50 years of age"⁶ (see Table 1, page 16). Unlike drugs, dietary supplements may include the disclaimer that such statements have not been subject to FDA review.

Evidence regarding an herbal remedy's claims need not be offered to the FDA unless regulators challenge those claims. Although dietary supplements are sold to affect physiologic functioning, they can only be removed from the market if the FDA can prove they are not safe.

Herbal supplement quality assurance remains a significant concern for physicians. A 1994 review of 50 ginseng products documented a nearly sevenfold difference in ginsenoside concentrations among products.⁷ Such variation is universally judged unacceptable for pharmaceuticals. For botanicals, however, the FDA does not require equivalent product standardization for uniformity between production batches because herbal products, as dietary supplements, are considered more similar to foods than to drugs. Just as tomato juice is not standardized for lycopenes and coffee is not standardized for caffeine, herbal products need not be standardized for active ingredients. The complex chemistry of plants, with the possibility of more than one active ingredient in an herb, further hampers efforts to standardize herbal products. These intrinsic difficulties with bioequivalence complicate and undermine the potential quality of clinical research for therapeutic effectiveness.

Physicians and consumers have expressed concern about the perceived lack of guidelines and oversight regarding bacterial, fungal, insect, and rodent contamination of herbal raw materials. The DSHEA now mandates new manufacturing practices for consumer protection.

Herbal Toxicities

In October 1997, the Federal Commission on Dietary Supplement Labels issued its final report. It noted, "There are relatively few reports in the scientific literature that indicate potential or actual toxicity following

Table 1

FDA examples of acceptable and unacceptable claims for dietary supplements

Acceptable Claims	Unacceptable Claims
Helps maintain a healthy cholesterol level	Lowers cholesterol
Helps promote urinary tract health	Improves urinary flow
Helps maintain healthy intestinal tract	Alleviates constipation

Derived from Notice of Proposed Rulemaking, Federal Register, April 29, 1998, by Mark Blumenthal. Reprinted in part with permission from Blumenthal M. FDA proposes new rules on dietary supplement structure-function claims. *HerbalGram* 1998;43:28.

Table 2

Top 10 herbs: Minnesota, United States, and Germany

Ranking	1997 Minnesota*	1996 United States ¹	1995 Germany ²
1	Echinacea	Echinacea	Ginkgo biloba
2	Ginkgo biloba	Garlic	Horse chestnut
3	St. John's wort	Ephedra	Hawthorn
4	Saw palmetto	Psyllium	Yeast
5	Goldenseal	Siberian ginseng	St. John's wort
6	Ginseng	Saw palmetto	Myrtle
7	Valerian	Cascara sagrada	Stinging nettle
8	Garlic	Cayenne	Echinacea
9	Milk thistle	Aloe	Saw palmetto
10	Cayenne	Valerian	Milk thistle

* 1997 Minnesota data: Jonathan George, Center for Spirituality and Healing

¹ Richman A, Witkowski JP. A wonderful year for herbs. *Whole Foods* 1996;52-60.

² Landers P. Market report—most frequently prescribed monopreparations in Germany. *HerbalGram* 1997;38:58-9.

their relative safety. This idea is supported by the reviews of the scientific literature that have been published by the European Scientific Cooperative on Phytotherapy, an association of 15 scientific societies in Western Europe. Herb advocates also note that Commission E of the German government's Bundesgesundheitsamt (federal health agency) evaluated the safety and efficacy of herbal medications and approved 190 herbs for 150 medical indications.⁹

The lack of reported unintentional physiologic effects may seem unduly optimistic to many physicians. First, a recent survey of 400 users of complementary medicines

found that 8% of users experienced adverse effects, albeit mild.¹⁰ Second, severe toxicity has been reported with several widely available individual herbs, including chaparral,¹¹ comfrey,^{12,13} germander,¹⁴ and pennyroyal.^{15,16}

Third, a prospective survey of 1,070 cases of herbal toxicities conducted by the London-based National Poisons Information Service demonstrated highly probable causality in three cases of severe or fatal liver toxicity with combination herbal products.¹⁷ A follow-up study by the Medical Toxicology Unit of Guy's Hospital in London of 1,297 symptomatic persons revealed a possible or confirmed association with herbal medications in 785 cases.¹⁸

Fourth, there is signif-

icant reason to fear product contamination, especially in products prepared or purchased outside the United States.¹⁹⁻²⁷ Finally, underreporting of toxicities is a serious problem for pharmaceutical preparations,²⁸ and no evidence suggests that reporting of adverse effects of herbal medicines is any better.

The risk of toxicity with herbal medicines exists, and medical professionals have a responsibility to document and report adverse reactions. The FDA's MedWatch hotline (800-FDA-1088) is one means to do so.²⁹ It is also important for physicians routinely to ask patients if they are using herbs,³⁰ since many patients do not report their use to their physicians.⁴

Commercial Availability

In the summer of 1997, University of Minnesota researchers surveyed 30 stores in the Minneapolis and St. Paul area regarding the sale of herbal supplements, homeopathic remedies, and vitamin supplements. Researchers visited each of the 30 stores, interviewed managers and/or employees, and obtained estimates of product sales. The result is a surprising picture of the sales of non-conventional therapies, including herbal remedies.

Herbal medications were readily available in a wide variety of locations, including grocery stores, large retail markets, chain pharmacies, and herbal specialty stores. In grocery stores and pharmacies, herbal medications were sold alongside vitamin and mineral supplements. Often, numerous shelves and even aisles were needed for the large volume of products. Products available included combinations of herbs and vitamin-herb mixtures that claimed greater strength and efficacy than single herbs. Food co-ops and herbal specialty stores also sold whole and ground herbs by weight.

With the exception of herbs sold by weight, all product labels stated that their health claims had not been evaluated by the FDA. To make an informed decision, consumers must obtain information about the use and selection of herbal supplements from store employees or from books, magazines, or promotional pamphlets. Computer screens with interactive CD-ROMs are increasingly available in stores. In contrast to grocery store and pharmacy employees, herbal store employees asserted familiarity with the purported medicinal properties and functions of the herbs and appeared more comfortable counseling customers.

Very few of the informational brochures, books, CD-ROMs, and other sources of information available where herbs are sold cited scientific evidence supporting the safety, efficacy, and validity of a particular herbal supplement. Different materials available within the same store contained conflicting claims, dosing guidelines, and toxicity concerns. Potentially dangerous advice can be readily found. Similarly, widely varying and unsubstantiated information is found on the Internet's huge number of Web sites devoted to herbs and supplements.

Licensed health care practitioners in Minnesota who counsel patients regarding herbal therapies include physicians, nurse practitioners, chiropractors, pharmacists, and acupuncturists trained in traditional Chinese medi-

cine. Unlicensed practitioners include naturopaths and members of the American Herbalist Guild, who act as health counselors regarding use of herbal supplements. Herbalists who do not advertise include community-recognized experts from the African, Asian, Russian, and Central American immigrant communities. Currently, no legally recognized accrediting body exists for either licensed practitioners or unlicensed counselors of herbal therapies.

The Scientific Support for 10 Leading Herbal Medicines

We surveyed 30 stores on herbal product availability and qualitative sales reports in the summer of 1997, which enabled us to identify the top 10 herbs sold over-the-counter in Minnesota. As noted in Table 2 (page 16), Minnesota sales reflect interesting similarities and differences from sales reported in the United States and Germany.

What follows is annotated evidence from peer-reviewed literature to assist physicians in counseling patients on 10 of the most frequently purchased herbs in Minnesota. (Indications, actions, and contraindications for the top 10 herbs are also summarized in Table 3, page 25.) Among the leading herbs sold nationally that are not discussed here are ephedra, which includes the potentially toxic sympathomimetic agent ephedrine,³¹ psyllium and cascara sagrada, two herbs used for constipation, and aloe, a topical agent as well as a leaf gel consumed as a "cleansing juice."³²



1. *Echinacea*

(*Echinacea angustifolia*,
E. pallida, *E. purpurea*)

Echinacea, commonly grown in North American gardens as the purple coneflower, was used by Native Americans and early settlers as a remedy for infections and for healing wounds. Now it is so widely used as an "immune system enhancer" that it has even generated front-page coverage in the *Wall Street Journal*.³³ However, it is not clear whether all *Echinacea* species are equally effective. Germany's Commission E judged *Echinacea purpurea* leaf and *E. pallida* root as active species. Neither *E. purpurea* root nor *E. angustifolia* root were approved by the commission. Since then, only one study has demonstrated significant enhancement of immunologic function (phagocytosis) by all three species in mice.³⁴ Products sold in Minnesota frequently contain *E. angustifolia* or

do not state the origin of the echinacea. Some echinacea products may contain *Parthenium integrifolium*, a non-therapeutic contaminant.⁹

In vitro research has documented that echinacea species contain inulin and increase circulating properdin, both of which activate the alternate complement pathway.³⁵ Echinacea enhances T-cell replication, natural killer cell activity, and macrophage phagocytosis, as well as production of tumor necrosis factor-alpha (TNF), interferon beta-2, and interleukins 1, 6, and 10.³⁶⁻⁴⁰ Many studies asserting that echinacea enhances phagocytosis as well as macrophage metabolic and bactericidal activities have been published in German and Czech.^{34,41-47}

Echinacea is promoted in the United States for prevention and treatment of the common cold. In Europe, it is used topically for wound healing and intravenously for immunostimulation. A 1994 review of 26 controlled trials (18 randomized and 11 double-blind) of echinacea extracts used for cold prevention and treatment, reduction of chemotherapy side effects, and general immune enhancement found positive results in most groups studied. The authors noted, however, that most of the studies were of such poor methodological quality that clear recommendations could not be made regarding the use of echinacea, including dosages.⁴⁸ Since then, two methodologically valid clinical studies have been published. First, a double-blind, three-armed, placebo-controlled trial of *E. augustifolia* and *E. purpurea* prophylaxis of upper respiratory infections in 302 volunteers demonstrated no protective effect when compared with placebo.⁴⁹ Second, a double-blind, randomized, placebo-controlled study of 160 patients using *E. pallida* for both bacterial and viral upper respiratory infections demonstrated clinically significant reductions in length of illness ($P < 0.0001$), overall symptom scores ($P < 0.0004$), and whole clinical scores ($P < 0.001$).⁵⁰

No known side effects are associated with echinacea, with the exception of elevated temperature and altered metabolism in diabetics following intravenous administration. One case of anaphylaxis has been reported.⁵¹ Echinacea is not recommended for persons with allergies to members of the *Asteraceae* family (formerly termed *Compositae*), which includes daisies, thistles, and chamomile. More importantly, tumor necrosis factor-alpha and interleukin 1 are pro-inflammatory cytokines, and recent evidence suggests anti-TNF and anti-interleukin 1 therapies are effective for Crohn disease and rheumatoid arthritis.⁵²⁻⁵⁴ Because echinacea increases TNF production, it cannot be recommended for people with chronic immunologic diseases, including multiple sclerosis, lupus, and HIV.

The LD₅₀ of intravenously administered echinacea juice is 50 ml/kg in mice and rats. Regular oral administration to mice at levels greater than proposed human

therapeutic doses has failed to demonstrate toxic effects.⁵⁵ However, one study has suggested that repeated daily doses suppress the immune response.⁵⁶ The German Commission E recommends that use be limited to eight weeks.⁹ Naturopathic herbalists recommend limiting use to two weeks or holding doses for one week every eight weeks with prolonged dosing.⁵⁷



2. Ginkgo (*Ginkgo biloba*)

Ginkgo is the No. 1 selling herb in Europe, where it is used for circulatory problems such as intermittent claudication,^{58,59} impotence,⁶⁰ and cerebral insufficiency.^{61,62} Commission E also approves its use for dementia syndromes with memory deficits, disturbances in concentration, depressive emotional condition, dizziness, tinnitus, and headaches.⁹ A 1992 review of 40 clinical studies found only eight methodologically valid, placebo-controlled trials, of which seven demonstrated that ginkgo was more effective than placebo for memory and concentration problems, headaches, depression, and dizziness.⁶³ European studies published in 1994 and 1996 demonstrated its effectiveness in slowing or reversing dementia.^{64,65} Recently, LeBars et al. confirmed these findings for patients with Alzheimer disease and multi-infarct dementia in an American trial with 309 subjects.⁶⁶

Ginkgo's mechanism of action is believed to be its in vitro antioxidative, vasodilatory, and antiplatelet properties. Ginkgo is more effective than betacarotene and vitamin E as an oxidative scavenger and inhibitor of lipid peroxidation of cellular membranes.⁶⁷ It stimulates release of endothelial-derived relaxing factor and prostacyclin⁶⁸ as well as nitric oxide.⁶⁹ Ginkgo is also a potent antagonist of platelet activating factor⁷⁰ and thus inhibits platelet aggregation and promotes clot breakdown.⁷¹ These properties may result in neuroprotective and ischemia-reperfusion protective effects.⁷²⁻⁷⁷

Side effects of ginkgo are extremely uncommon. They include gastrointestinal discomfort, headache, and dizziness.⁷⁸ Skin contact with the plant's fruit pulp causes a severe poison ivy-like dermatitis, and the pulp and seeds are toxic if ingested.⁷⁹ However, consumers are not at risk for such exposure in commercially available preparations. Most significantly, because of the antiplatelet effect, there is a risk of bleeding when ginkgo is used with anticoagulants and other antiplatelet agents.⁸⁰⁻⁸²

3. St. John's Wort (*Hypericum perforatum*)



St. John's wort has been the subject of innumerable reports on television and radio and in newspapers and magazines as a "wonder drug" for depression or as "nature's Prozac."⁸³ This interest has

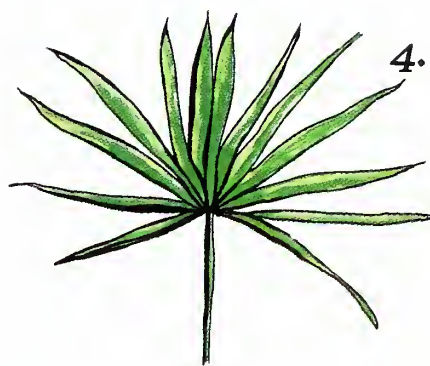
surprised many physicians, who may remember the equally great public interest in this herb as a promising antiviral therapy just 10 years ago.⁸⁴ St. John's wort is now the No. 5 selling herb in Europe. It outsells fluoxetine by a large margin in Germany, where it is licensed for treatment of anxiety, depression, and insomnia. In 1994, German physicians prescribed 66 million doses of *Hypericum* a day for the treatment of depression.⁸⁵

In vitro studies demonstrate that *Hypericum* extract is active at numerous neurotransmitter receptors, including serotonin, adenosine, monoamine oxidase (MAO-A and MAO-B), as well as GABA_A and GABA_B.⁸⁶ The result is modulated synaptosomal uptake of the neurotransmitters serotonin, norepinephrine, and dopamine as well as GABA receptor binding.⁸⁷ Components of the extract appear to inhibit weakly MAO-A and -B. No in vivo inhibition has been demonstrated, however.⁸⁸⁻⁹⁰ *Hypericum* extract may inhibit serotonin uptake by postsynaptic receptors.⁹¹ Additionally, subchronic treatment in rats has resulted in significant down-regulation of beta receptors and significant increases in both 5-HT_{1A} and 5-HT_{2A} receptors in the frontal cortex.^{92,93} Whether this is duplicated in vivo is not known.

A 1996 review of 23 randomized trials involving 1,757 patients with mild to moderate depression documented that *Hypericum* extracts are significantly better than placebo and similarly effective as tricyclic antidepressants.⁹⁴ These studies have been criticized for not standardizing the diagnosis of depression or the dose of the herb's presumed active ingredient, hypericin. Additionally, the studies were short in duration, enrolled small numbers of subjects, and had lower than expected placebo response rates.⁹⁵ It should be noted, however, that hypericin may not be the active ingredient in St. John's wort; at least 10 constituents have pharmacologic effects.⁹⁶ Overall, 55.1% of subjects responded to St. John's wort and 22.3% responded to placebo.

Hypericum has a more favorable side-effect profile than tricyclic antidepressants. In the above meta-analysis, side effects were noted in 19.8% of patients taking St. John's wort, compared with 35.9% of those who re-

ceived tricyclic antidepressants. Withdrawal from studies due to side effects occurred in 4% of St. John's wort patients, compared with 7.7% of those receiving standard antidepressants. No comparison studies have been done with SSRIs. The Institute of Clinical Pharmacology in Berlin noted that even in high doses, St. John's wort was well tolerated.⁹⁷ No in vivo MAO-inhibiting activity has been demonstrated with *Hypericum*; therefore, no dietary precautions are indicated at this time.⁹⁸ The most serious toxicity concern is the risk of hypericism, a photosensitivity found in animals that graze on large amounts of St. John's wort.⁹⁹⁻¹⁰⁰ There is no indication for using St. John's wort with prescription antidepressants.



4. Saw Palmetto (*Serenoa repens*)

Although the berries of the dwarf palm, or saw palmetto, have a reputation as an aphrodisiac, the scientific evidence only supports

its use for benign prostatic hypertrophy (BPH).¹⁰¹ A recent meta-analysis of 18 studies incorporating 2,939 patients confirmed saw palmetto's effectiveness in improving urinary tract symptoms and urinary tract flow measures.¹⁰² Extract of saw palmetto berry has been shown to inhibit the enzyme testosterone 5-alpha-reductase isoenzymes 1 and 2 and thus block the conversion of testosterone to dihydrotestosterone (DHT).¹⁰³ Additionally, the extract inhibits DHT from binding to cellular and nuclear androgen receptor sites, thus increasing the metabolism and excretion of DHT.¹⁰⁴ DHT is believed to be responsible for prostatic hypertrophy and is the target for finasteride, a synthetic inhibitor of testosterone 5-alpha-reductase isoenzyme type 2, marketed by Merck for BPH. In vitro studies demonstrate that *Serenoa* is far more potent than finasteride at inhibiting this enzyme.^{103,105}

In numerous double-blind and open trials, extracts of saw palmetto have been shown to be effective for nearly 90% of subjects in reducing symptoms of BPH within four to six weeks. In one double-blind, placebo-controlled study of 110 patients given 320 mg/day of extract, nocturia decreased by 45%, flow rate increased by over 50%, and postmicturition residue decreased by over 40%. The extract was statistically superior to placebo for every parameter after 30 days of treatment.¹⁰⁶ A 1994 open, multicentered study of 305 sub-

jects given 160 mg BID of extract standardized to contain 85% to 95% fatty acids and sterols confirmed clinically significant improvements for maximum and mean urine flow. Additionally, the international prostate symptom score decreased from 19 to 12.4 after three months of treatment. After 90 days, the percentage of subjects who reported being "unsatisfied" with their quality of life decreased from 43.8% to 9.5%. Subjects reporting satisfaction with their quality of life increased from 9.7% to 36.8%. Those who reported being "happy" increased from 2.3% to 24%.¹⁰⁷ A 1995 study of 2,080 men with BPH who were treated with saw palmetto and stinging nettle root (*Urtica dioica*) for three months demonstrated a 26% increase in maximum urinary flow, a 44.7% reduction in residual urine, a 62.5% reduction in painful urination, and a 50% reduction in nocturia.¹⁰⁸ More recently, a study of 1,098 men with moderate BPH randomized to take a saw palmetto extract or finasteride demonstrated significant decreases in international prostate symptom scores (37% and 39%, respectively). Improvements in urinary flow rates were noted in both groups (25% and 30%, $P=0.035$). Saw palmetto was associated with significantly less toxicity, such as decreased libido and impotence, and significantly lower

cost than finasteride. Finasteride also decreased PSA levels 41%; no change was noted with saw palmetto.¹⁰⁹

Although saw palmetto has been judged better than finasteride for BPH,¹¹⁰ one 12-week study of 45 patients showed the alpha-adrenergic antagonist Prazosin to be marginally more effective than saw palmetto.¹¹¹ Another double-blind, comparative, parallel-group study limited to three weeks demonstrated statistically significant improvements in patients treated with alfuzosin compared with those treated with *Serenoa*.¹¹²

In the clinical trials, the incidence of side effects has been quite low, with headache and minor gastrointestinal distress being cited most frequently. No severe side effects have been reported. There are no data regarding the safety or efficacy of saw palmetto in treating diseases other than BPH or in populations other than mature men.

Additionally, since men with 5-alpha-reductase deficiency develop prostatic cancer relatively rarely, consumers may be using the enzyme-inhibiting *Serenoa* to prevent prostate cancer. Although no data are available on preventing or minimizing male pattern hair loss, extrapolated data would suggest that *Serenoa* may reduce this type of hair loss.

Herbs in Medical School Education

By Jonathan George, B.A., and Sarah Axtel, Ph.D.

Last summer, first-year medical students at the University of Minnesota attended a lecture called "Complementary and Alternative Pharmacotherapeutics," taught by Greg Plotnikoff, M.D., M.T.S. The lecture focused on the pharmacology of herbal medicines, including their potential uses and benefits, adverse effects, and drug interactions. Plotnikoff also addressed such issues as FDA regulation of herbs and liability issues involved in prescribing these nutritional supplements.

Following the lecture, the medical students were surveyed for their opinions on herbs, including what role herbs may play in their future medical practice and whether herbs should be incorporated into medical education. Surprisingly, 98% of the students polled felt that as future doctors, they should be prepared to counsel patients regarding the use of herbs. Additionally, 49% of the students said they would personally recommend the use of herbs to patients in their future medical practice.

Although 33% of the students said they think physicians currently should be recommending herbs

to patients, 63% were uncertain. Students expressed concerns about insufficient evidence of effectiveness, lack of randomized, double-blind, placebo-controlled trials, and liability. Students indicated that a physician's recommendation of herbs should depend not only on the patient's health condition, but also on the patient's opinion about or request for herbs and on the physician's level of knowledge regarding herbs. Other students noted that herbs might be useful in cases where no better treatment is available, such as using *Echinacea* for infections of the upper respiratory tract.

Sixty-one percent of the students surveyed felt that herbs should be held to the same standards as FDA-approved medicines. Some students argued that clinical trials could confirm adverse reactions and potential benefits of specific herbs, could reduce public misconceptions, and could prevent false advertising by the herbal supplement industry. Students expressed significant concern, however, that the \$200 million it might take to standardize just one herb would be better spent elsewhere.



5. Goldenseal

(*Hydrastis canadensis*)

Cherokee Indians used goldenseal as a clothing dye and for relieving mucous membrane irritation.

Since the Civil War, goldenseal's popularity in "patent medicines" and folk remedies has resulted in its near extinction. The most active ingredient is believed to be berberine, which has both astringent and antiseptic properties.¹¹³⁻¹¹⁵ It has demonstrated in vitro activity against many infectious organisms, including enterotoxigenic *Escherichia coli* and other bacterial enteropathogens as well as *Entamoeba histolytica*, *Giardia lamblia*, and *Trichomonas vaginalis*.¹¹⁶⁻¹¹⁹ Berberine is also in *Berberis aristata*, which has been used in India and China for many centuries to treat diarrhea.¹²⁰ In one study, berberine was shown to reduce the mean stool volume and length of illness in 165 adults with acute diarrhea due to enterotoxigenic *E. coli*.¹¹⁶ However, a 1992 study of intestinal fluid accu-

mulation secondary to heat-stable enterotoxigenic *E. coli* toxin demonstrated no benefit of pre- or post-treatment with berberine.¹²¹ Additionally, a 1985 study of 215 patients with acute watery diarrhea reported that neither berberine nor tetracycline had any benefit over placebo.¹²² Today in the West, goldenseal is most often used orally for sore throats and acute diarrhea.^{123,124} Goldenseal is found in some commercial sterile eye washes, although there is no clinical evidence to support its effectiveness. It is also used topically with lanolin for diaper rash or alone for acne.

Goldenseal has been marketed for preventing the detection of morphine, marijuana, or cocaine in urine samples, although no evidence supports these claims.¹²⁵ Goldenseal is a partial antagonist of alpha-1 and alpha-2 adrenoreceptors¹²⁶ and has been reported to both calm or stimulate the uterus; therefore, it is contraindicated in pregnancy.¹²⁷ Berberine displaces bilirubin from albumin and thus should not be given to infants less than one month of age.¹²⁸ Although goldenseal is not well absorbed from the gastrointestinal tract, large doses have been associated with central nervous system stimulation, respiratory failure, and hypertension as well as mouth irritation, nausea, vomiting, diarrhea, and paresthesia.¹²⁴ The German Commission E did not address goldenseal.

Nearly all of the students thought that herbs would be a welcome addition to medical school education. One student commented, "There is so much to learn and so much we don't know about herbal medicines. This lecture is an invaluable addition to our curriculum." Another student observed, "If 34% of American adults are taking herbal medicines or other alternative treatments, they should be able to receive counsel from a knowledgeable doctor. This would allow patients to make more informed decisions."

A few students worried that their medical school curriculum had no room for additional courses. "[What] do we cut out in order to fit herbal medicines into our education?" one student asked.

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6. Ginseng

(*Panax quinquefolius* [American],
Panax ginseng [Asian],
Eleutherococcus senticosus
[Siberian])

Ginseng has been used extensively in Asia for thousands of years, and Americans have exported the roots of ginseng plants to China since the 1700s.¹²⁹ The name *Panax* derives from the same root as "panacea," meaning "cure-all" or "all healing." There are two forms of ginseng, with chemically different active ingredients, ginsenosides and eleutherosides. The *Panax* species

are found in Asia and North America, while the *Eleutherococcus* species grows in Siberia. *Panax* species contain no eleutherosides, and *Eleutherococcus* species contain no ginsenosides. Despite different active ingredients, both the *Panax* and *Eleutherococcus* forms of ginseng are marketed as "adaptogens," that is, general strengthening or antistress agents. Germany's Commis-

sion E endorsed *Panax ginseng* and *Eleutherococcus senticosus* as tonics "for invigoration and fortification in times of fatigue and debility, for declining capacity for work and concentration, and during convalescence."¹³⁰ Currently, both forms of ginseng are widely available in commercial foods, beverages, and cosmetics. Sales are estimated at more than \$300 million per year.¹³¹

Although ginseng has been used for several millennia and is highly valued by athletes, cosmonauts, students, and seniors, the plant's adaptogenic effect still has not been well-demonstrated in humans. Farnsworth et al's 1985 review of the *Eleutherococcus* literature covering 2,100 patients asserted that Siberian ginseng demonstrated multiple pharmacologic effects, including CNS depression or stimulation, blood pressure normalization (from high or low states), a papaverine-like effect on smooth muscles, as well as analgesic and anti-inflammatory effects. Additionally, this review asserted that Siberian ginseng increased mental alertness and enhanced physical performance.¹³² Supporting evidence comes from small studies. For example, one double-blind, placebo-controlled study on psychomotor performance by 16 healthy students demonstrated a statistically significant improvement in arithmetic and deductive reasoning skills.¹³³ Another double-blind, randomized, placebo-controlled crossover study of 50 sports teachers demonstrated enhanced cardiovascular response during and after strenuous physical activity. This increased work capacity was accompanied by a very significant rise in oxygen uptake and consumption, far beyond a training effect.¹³⁴

Eleutherococcus is contraindicated in hypertension.⁹ Preparations of *Eleutherococcus* have been implicated in neonatal androgenization¹³⁵ and digoxin toxicity.¹³⁶ These effects may have been due to contamination with *Periploca sepium*, a toxic plant that contains cardiac glycosides and pregnancy-type steroids. Unfortunately for consumers, *P. sepium* is commonly substituted for *E. senticosus*.¹³⁷ Further cases of *Eleutherococcus* toxicity have not been reported in the medical literature.

Recent studies on *Panax ginseng* have suggested a positive effect on impaired learning,^{138,139} an immunostimulatory effect,¹⁴⁰⁻¹⁴³ a vasodilatory effect,^{131,144} an antithrombotic effect,¹⁴⁵ an anti-aging effect,¹⁴⁶ and protective effects against radiation damage,¹⁴⁷⁻¹⁵⁰ ischemic damage,¹⁵¹⁻¹⁵⁵ oxidative damage,^{156,157} cancer development,¹⁵⁸⁻¹⁶³ and tumor metastasis.¹⁶⁴⁻¹⁶⁶ Definitive, methodologically valid clinical studies have yet to be undertaken.

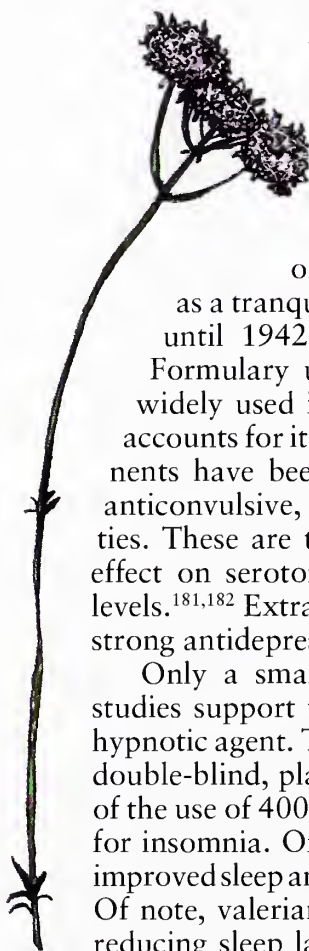
Informed counseling regarding *Panax ginseng* is hampered by its widespread use and the lack of definitive clinical studies. Since the plant's active principles have opposing effects—ginsenoside Rg1 raises blood pressure and is a central stimulant, while ginsenoside Rb1 lowers

blood pressure and is a central depressant—clinical data may be quite specific for one product and not valid for another. Furthermore, ginseng is not a completely benign herb. The most common side effects are nervousness and excitation. In one case report, ginseng possibly precipitated a manic episode.¹⁶⁷ Potential hypertensive¹⁶⁸ and hypoglycemic¹⁶⁹ effects have been noted. Ginseng appears to have an estrogenic effect,¹⁷⁰ which may have resulted in one case of diffuse mammary nodularity¹⁷¹ and one case of postmenopausal vaginal bleeding.^{172,173} There have been case reports of Stevens-Johnson syndrome¹⁷⁴ and cerebral arteritis developing secondary to ingestion of *Panax ginseng* extracts.¹⁷⁵ One report described a ginseng abuse syndrome in 133 patients who took more than 3 g/day for up to two years. The syndrome consisted of hypertension, nervousness, sleeplessness, skin eruptions, and morning diarrhea.¹⁷⁶ Because this was an open study with numerous confounding variables, such as nonstandardized product and concomitant caffeine use, interpretation of the data is impaired. One study reported inability to concentrate following long-term use of ginseng.¹⁷⁷ Ginseng may also interfere with warfarin metabolism¹⁷⁸ and diuretic effectiveness.¹⁷⁹

7. Valerian (*Valeriana officinalis*)

Valerian has been used as an anti-anxiety agent and sedative/hypnotic agent for over 1,000 years. Valerian was placed on the United States Pharmacopeia as a tranquilizer in 1820 and remained there until 1942. It was listed on the National Formulary until 1950.¹⁸⁰ It continues to be widely used in Europe. No single component accounts for its sedative activity. Several components have been found to have antispasmodic, anticonvulsive, hypotensive, and sedative properties. These are thought to result from valerian's effect on serotonin, norepinephrine, and GABA levels.^{181,182} Extracts of *Valeriana* root also exhibit strong antidepressant activities in mice.¹⁸³

Only a small number of controlled clinical studies support the use of valerian as a sedative/hypnotic agent. The best study to date is a Swedish double-blind, placebo-controlled, crossover study of the use of 400 mg of valerian extract at bedtime for insomnia. Of the 128 subjects, 89% reported improved sleep and 44% reported "perfect sleep."¹⁸⁴ Of note, valerian extract has been as effective in reducing sleep latency as small doses of barbitu-



rates or benzodiazepenes while also reducing rather than increasing morning fatigue.¹⁸⁵

Valerian's safety profile is not as clear as those of the other herbs discussed in this article. Because of in vitro cytotoxic and alkylating activities, long-term use may be problematic.^{186,187} Valepotriates and valerenic acid, found in fresh valerian roots and tinctures, have alkylating properties with demonstrable cytotoxicity in in vitro cell systems. This cytotoxic effect becomes 10 to 30 times less toxic after valepotriate decomposition with storage of the product for two months.¹⁸⁸

Currently, no clinical data suggest valerian toxicity.¹⁸⁹ No deaths occurred in mice given up to 1600 mg/kg intraperitoneally or up to 4600 mg/kg orally.¹⁸⁷ One case report describes an overdose of 20 times the recommended therapeutic dose, which resulted in mild symptoms.¹⁹⁰ Central nervous system depression and anticholinergic poisoning were noted in one series of 23 patients who had ingested excessive amounts of a product sold for insomnia that included hyoscyne and cyproheptadine in addition to valerian. No liver toxicity was noted.¹⁹¹ Several cases of hepatotoxicity have been noted in persons taking preparations purporting to consist of *Valeriana*, *Scutellaria* (skullcap), and *Viscum* (mistletoe) species.¹⁹² The hepatotoxicity was relegated to the presumed presence of *Teucrium chemedrays* (germander), a common adulterant of skullcap.¹⁹³ Side effects of valerian noted in clinical trials have included headaches, excitability, uneasiness, and cardiac disturbances.¹⁸⁷ Significantly, vigilance and cognitive performance are significantly less affected than with benzodiazepenes.¹⁹⁴

The United States Pharmacopeia recently concluded that "a general recommendation supporting [valerian's] use ... cannot be supported due to lack of adequate scientific evidence and conflicting study results."¹⁹⁵ This opinion is not shared universally. Valerian is approved as a sleep aid in Canada. The European Scientific Cooperative on Phytotherapy published a therapeutic monograph on valerian asserting its safety and efficacy.¹⁹⁶ And in monographs published in 1985 and 1990,⁹ Germany's Commission E approved its use.



8. Garlic

(*Allium sativum*)

The same garlic used in cooking throughout the world also has demonstrable pharmacologic effects. However, the extent of garlic's effect on cholesterol and lipid levels, lipoperoxidation/atherogenesis, hypertension, and thrombogenesis remains highly debated. At best,

one can say that studies have produced inconsistent results. These may be due to inconsistent products and active ingredient extractions.^{197,198}

Initial studies in both animals and humans showed that garlic significantly reduces total cholesterol, triglycerides, and LDL and increases HDL.^{199,200} In a frequently cited article, Warshawsky presented a meta-analysis of five trials looking at the effect of garlic on cholesterol. One-half to one clove of garlic a day lowered serum cholesterol about 9% in those studied.²⁰¹ A follow-up meta-analysis confirmed the positive but small cholesterol-lowering effect.²⁰² Most recently, two large, well-designed clinical trials failed to demonstrate a positive effect for serum lipid reduction.^{203,204} However, in both human and animal studies, garlic has demonstrated a protective effect from hyperlipidemic diets.^{199,205}

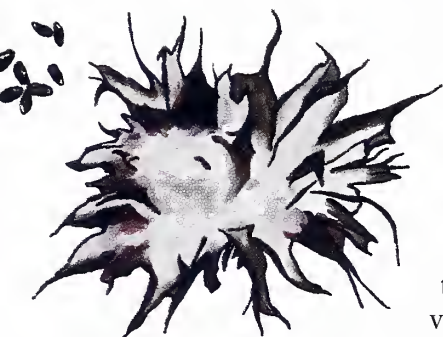
Aside from lowering lipids, garlic may have other positive effects. Recent in vitro studies of aged garlic extract and one of its major compounds, S-allyl cysteine, have demonstrated significant inhibition of oxidative modification of LDL and protection of vascular endothelial cell viability.^{206,207} The principle active component of garlic clove extracts, allicin, and its precursor, alliin, show significant antioxidant activity.²⁰⁸ Garlic also has the capacity to inhibit thiol disulfide exchange and, therefore, thiol-containing enzymes.²⁰⁹

These functions may translate into a vascular-protective effect. In cultured human smooth muscle cells derived from normal aortic intima, garlic powder extract has been shown to abolish atherogenic blood serum-induced accumulation of free cholesterol, triglycerides, and cholesterol esters.²¹⁰ Likewise, in another recent study, 24 rabbits with deendothelialized right carotid arteries were randomized to four groups: standard or cholesterol-supplemented diets with or without aged garlic extract. Rabbits receiving aged garlic extract demonstrated significantly reduced fatty-streak development, vessel-wall cholesterol accumulation, and intimal fibro fatty plaque development.²¹¹ Studies in 101 human volunteers using pulse wave velocity and pressure-standardized elastic vascular resistance demonstrated that garlic intake may protect the elastic properties of the aging aorta.²¹²

Garlic oil inhibits platelet function at a concentration of less than 10 $\mu\text{mol/l}$ in plasma.²¹³ Few in vivo studies exist. Platelet aggregation inhibition lasting up to two and a half hours has been demonstrated in humans who ingested at least 100 mg/kg of fresh garlic cloves.²¹⁴ In one study of 120 patients treated with dried garlic powder or placebo for four weeks, spontaneous platelet aggregation disappeared and skin microcirculation increased significantly in the treatment group.²¹⁵ Likewise, in a placebo-controlled trial of the use of aged garlic extract to treat hypercholesterolemic men, treated sub-

jects demonstrated significantly reduced platelet aggregation to inducers and platelet adhesion to fibrinogen.²¹⁶ Garlic also appears to increase serum fibrinolytic activity significantly.²¹⁷

There is no known toxicity with garlic ingestion. One case report described possible garlic-induced platelet dysfunction resulting in a spinal hematoma.²¹⁸ Some data suggest, however, that garlic also has a mild antineoplastic activity.²¹⁹⁻²²⁹ Epidemiologic studies have not demonstrated this protective effect of garlic.^{230,231} No evidence supports garlic's primary use for treatment of disease. Likewise, no medical contraindications prohibit its use as a supplement.⁹



9. Milk Thistle (*Silybum marianum*)

Milk thistle contains silymarin, a powerful antioxidant and antihepatotoxin with marked in vitro and in vivo activity against the most powerful liver toxins, including alcohol,²³² carbon tetrachloride,^{233,234} and mushrooms such as *Amanita phalloides* (deathcap or toadstool).²³⁵⁻²³⁷ The herb is used widely in Europe to treat acute hepatotoxin poisoning and as a supportive treatment for chronic hepatitis and cirrhosis.^{238,239}

Based on in vitro studies, milk thistle's mechanisms of action appear to include 1) increased hepatocyte regenerative capacity via nucleolar polymerase A stimulation,²⁴⁰ 2) cell membrane alteration to block toxin uptake,²⁴¹ 3) increased intracellular glutathione production and concentrations,²⁴² and 4) membrane stabilization via antioxidant and radical-scavenging actions²⁴³⁻²⁴⁶ and lipoxygenase inhibition.²⁴⁷⁻²⁴⁹ Clinically, this has resulted in apparent benefit for victims of mushroom poisoning,²⁵⁰ drug and chemical hepatotoxicity,^{251,252} alcoholic cirrhosis,^{253,254} as well as acute²⁵⁵ and chronic²⁵⁶ viral hepatitis.

Additionally, these antioxidant and membrane-stabilizing properties may be helpful in protecting the exocrine pancreas from cyclosporin A toxicity²⁵⁷ and the kidney from cisplatin-induced toxicity^{258,259} and cyclosporin A toxicity.²⁶⁰ Silymarin appears to have an anticancer effect,²⁶¹⁻²⁶³ including protection against UVB-induced carcinogenesis.²⁶⁴⁻²⁶⁶ One review article²⁶⁷ but no meta-analysis of clinical studies exist.

Three clinical studies deserve highlighting. First, a double-blind study of milk thistle use to treat acute hepatitis demonstrated significant improvements in liver

function tests, recovery time, and hospitalization compared with placebo. Second, 2,500 subjects with chronic liver disease who were treated with a commercial preparation of milk thistle demonstrated improvement in both objective and subjective liver function parameters.²⁶⁸ Third, a six-month, double-blind, randomized, placebo-controlled intervention in patients with chronic alcoholic hepatitis demonstrated significant improvements in liver function tests and liver biopsy histology.²⁶⁹ The Mayo Clinic currently has a trial underway for subjects with hepatitis C (see related article on a Hennepin County Medical Center study, page 6).

Few side effects have been reported aside from infrequent and brief gastrointestinal disturbances and mild allergic reactions.²⁷⁰ According to the European manufacturer of one brand of milk thistle, rats investigated after receiving 50, 500, and 2500 mg/kg for 12 months demonstrated no toxicity.²⁷¹



10. Cayenne (*Capsicum annuum*)

Like garlic, cayenne is an herb used for both cooking and healing. Physicians will readily recognize cayenne's active ingredient, capsaicin, which is commonly used topically for many conditions, such as neuropathies and neuralgias. Although capsaicin's ability to deplete substance P from sensory neurons is well known,²⁷² many physicians do not recognize its widespread oral use.

Capsicum has both antioxidant and cardioprotective properties. Active ingredients besides the potent capsaicin include carotenoids and vitamins A and C. Like garlic, oral cayenne pepper reduces serum cholesterol,²⁷³ reduces platelet aggregation,²⁷⁴ and increases fibrinolytic activity.²⁷⁵ Consumers may also be purchasing *Capsicum* for a gastroprotective effect^{276,277} or for an antimutagenic effect.^{278,279} Insufficient studies exist for a meta-analysis.

Because of the current popularity of pepper sprays, cayenne is frequently associated with human poisonings.²⁸⁰ There is no associated toxicity with oral use or with topical use as directed. However, data derived from rabbit pharmacokinetics indicate that theophylline serum levels may be affected by an altered elimination rate constant.²⁸¹ Additionally, excessive doses may reverse cayenne's antimutagenic effect and result in carcinogenicity and the promotion of gastric cancer.²⁸²

Text continues on page 26.

Table 3

Minnesota's Top 10 Herbs: Indications, Actions, Contraindications

Herb	Indications	Actions	Contraindications/Side Effects
Echinacea	common cold/URIs	activates alternate complementary pathway; enhances macrophage phagocytosis, T-cell replication, and cytokine production	not for use with autoimmune diseases—may cause immunosuppression with prolonged use
Ginkgo biloba	memory problems, including dementia; peripheral arterial disease	antioxidant and vasodilatory properties; antagonizes platelet-activating function	caution required with anticoagulation and/or antiplatelet agents; may rarely cause GI upset, headache, and dizziness
St. John's wort	mild to moderate depression	inhibits synaptosomal uptake of serotonin, norepinephrine, and dopamine; inhibits binding to GABA receptors	photosensitivity noted with high doses; theoretical risk of precipitating a serotonergic reaction when used with other agents
Saw palmetto	benign prostate hypertrophy	blocks conversion of testosterone to dihydrotestosterone (DHT); increases metabolism and excretion of DHT	contraindicated in women of child-bearing age; very infrequent headache and mild GI distress
Goldenseal	commonly used for diarrhea, colds, and sore throat	has astringent and antiseptic properties; partial antagonist of alpha-1 and alpha-2 adrenoreceptors; displaces bilirubin from albumin	contraindicated in pregnant women and infants; large dose associated with CNS stimulation, respiratory failure, hypertension, nausea, vomiting, diarrhea, and paresthesias
Ginseng	commonly used as a general strengthening, antifatigue, and antistress agent	multiple conflicting actions dependent upon ingredient ratios	overdose results in nervousness, excitation; possibility exists for significant hypertensive and hypoglycemic reactions; implicated in estrogenic effects, Stevens-Johnson syndrome, and cerebral arteritis; may affect anticoagulant and diuretic effectiveness
Valerian	insomnia	antispasmodic, anticonvulsive, hypotensive, and sedative properties	headaches, excitability, and arrhythmias possible; uncertain safety of long-term use
Garlic	cardioprotection	lowers cholesterol, triglycerides; raises HDL; inhibits lipid peroxidation and platelet function	no data on safety with anticoagulant and antiplatelet agents
Milk thistle	hepatoprotection	speeds hepatocyte regeneration; blocks toxin uptake by hepatocytes; increases intracellular glutathione; blocks lipid peroxidation; inhibits lipoxigenase	mild GI disturbance and allergic reactions possible
Cayenne	cardioprotection	reduces serum cholesterol; reduces platelet aggregation; increases fibrinolysis	may affect theophylline levels; high oral doses may promote gastric cancer; topically can cause burning; caution urged to protect eyes and mucous membranes

Conclusion

We hope that this information—which herbs are selling best, how they are sold in the Twin Cities, and the scientific evidence regarding their effectiveness and potential toxicities—will help Minnesota's physicians and the lay public to understand more about herbal medicines and to make wise decisions regarding their use.

As health care professionals, we need to understand that potential risks exist in the herbal supplements market. First, the method of preparation of various commercial herbal products has a major influence on their activity in the human body. Second, some herbal supplement manufacturers do not strive for batch-to-batch standardization. Thus, there is little control over the content in a labeled herb bottle, not to mention the dosage of its active constituents. For herbal supplements to effect the expected changes in physiologic functioning, the dose of active principle must not vary by more than a specified amount from batch to batch.

Finally, there is inadequate scientific assessment of the safety of herbal preparations. Although scientific evidence adequately supports the safety of the 10 widely used herbs described in this article, numerous herbs have proven toxic. The risk of toxicity combined with the lack of standardization is particularly troubling given past difficulties with contamination, mistaken identities, and substitutions of one herb for another in commercial

preparations. The herbal supplement industry currently lacks an appropriate review process that would eliminate such hazards. Based on the available data, none of the herbs mentioned in this article would pass the FDA drug review process for safety and efficacy.

These concerns create a potential legal risk for health professionals counseling patients and making dosing recommendations (see related article, page 53). Given the lack of consumer protections and the exponential growth of herbal sales, physicians must push for 1) scientific support for all health claims on herbal product packages and promotional materials, 2) documented standardization of the content of all commercial supplements, and 3) further research on the safety and efficacy of herbal therapies, including postmarketing surveillance.

In the future, pressure from patients and pharmacists will probably encourage changes in health science education. At the University of Minnesota Academic Health Center, introductions to herbal medicines and herbalism are included in numerous CME offerings, and preliminary clinical research initiatives are underway. The university's Medical School includes herbal medicines in the pharmacology class, and the College of Pharmacy offers a popular elective course in herbal pharmacotherapeutics. Additional educational offerings are being planned as part of the university's new interdisciplinary minor in complementary therapies and healing practices.

The herbal medicine movement appears to be here to stay. As physicians, we must be prepared to ask our patients about their use of herbal medicines and dietary supplements. We must listen to and counsel our patients from an evidence-based perspective. We must promote the funding of randomized controlled trials. Finally, we must continue to work with pharmacists, hospital formulary committees, legislators, health plans, and others to promote patient well-being. MM

Acknowledgments

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Gregory Plotnikoff is an assistant professor of Clinical Internal Medicine and Pediatrics at the University of Minnesota Academic Health Center and medical director of the university's Center for Spirituality and Healing. Jonathan George is a recent graduate of Amherst College who now works at the Fred Hutchinson Cancer Research Center. He interned at the Center for Spirituality and Healing in 1997 and 1998.

The references for this article are available on the Minnesota Medical Association Web site, www.mnmed.org. Click on "News & Publications," then "Minnesota Medicine."

Herb drawings by Hilary Meyer.

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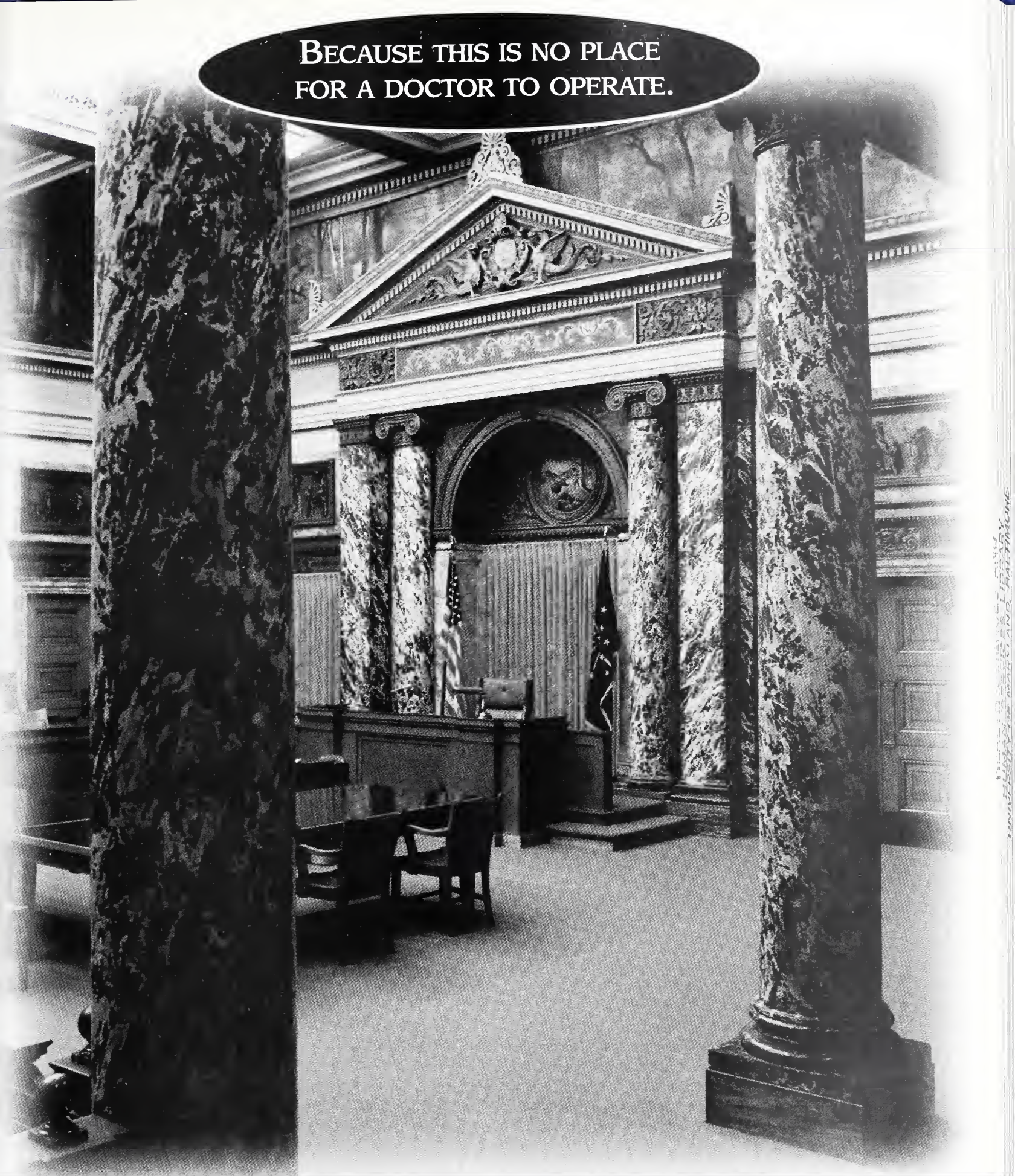
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The Hazards of Psychotropic Herbs

Joyce A. Tinsley, M.D.

ABSTRACT

The use of medicinal herbs has increased over the past few years, and psychotropic herbs are among the most popular on the market. Patients and physicians may assume these products are safe; however, dietary supplements are not subject to the rigorous testing required for prescription medications. Problems that may occur with the use of psychotropic herbs include overuse or abuse, side effects, and herb-drug interactions. Ma huang, St. John's wort, and kava are examples of readily available herbs with the potential for negative effects. Physicians should improve their knowledge of these products so they can provide reliable information to their patients.

Psychotropic herbs have been used in healing for centuries. Two of the earliest are the opium poppy and the coca plant. These herbs were revolutionary anesthetics. In fact, we still rely heavily on opium, from which morphine and codeine are extracted. The dark side of these plants is that they produce two of the most notorious street drugs in the modern world, heroin and cocaine. These are striking examples of the potential for ancient medicinal herbs to produce devastating consequences, but they are not the only psychotropic herbs that can produce unwanted consequences.

HERBAL REMEDY REVIVAL

Fascination with herbal healing has peaked at various times in history. Despite the availability of sophisticated therapeutics as the 21st century approaches, the current demand for herbal remedies is high. Several factors may be driving this phenomenon. According to a recent article published in *Journal of the American Medical Association*, people who have a holistic or spiritual orientation are most likely to utilize alternative medicine because it fits with their philosophy of life and health.¹ Other possible reasons for the growth in the use of herbal remedies include relaxed regulations of these products, patient disillusionment with a changing health care industry, and a desire for convenience and personal control. Moreover, economics plays a role in the increasing use of herbal supplements. The market for herbal supplements was estimated at \$2 billion to \$3 billion in 1997; sales of St. John's wort that year reached nearly \$50 million.² As a multimillion dollar business, the dietary supplement industry is an effective lobby.³

Patients often ask their doctors

about the benefits and dangers of contemporary herbal products, but the popular press and the Internet provide most of the information about botanicals. The labels on packaged herbs imply therapeutic effects; however, these supplements are not subject to the rigorous testing required for prescription medicines. Passage of the 1994 Dietary Supplement Health and Education Act left the Food and Drug Administration (FDA) with limited jurisdiction over many herbal products. Dietary supplements are categorized as neither food nor drug, so they are largely exempt from FDA regulation.⁴

DANGERS OF MEDICINAL HERBS

The assumption that herbs are "natural," and thus, safe, can be wrong. Surprisingly, the therapeutic constituent of some herbs is also the most toxic part of the plant. For instance, *Rauwolfia serpentina* oil is poisonous, yet it is the source of the antipsychotic reserpine. The castor oil bean, as well as foxglove, from which digitalis is produced, are also medically useful plants that can be deadly.⁵ Through years of practice and experience, scientists have carefully determined the therapeutic dosages for these ancient medicines. Herbs may be mistakenly mixed with poisonous plants, or in some cultures, purposely combined with nonplant ingredients such as minerals or heavy metals.⁶ Poor product standardization is a real concern for today's consumer; it means there may not be uniformity in the amount of active ingredient in a particular herbal product.³

While patients often accurately diagnose common ailments, the risk of misdiagnosis is inherent in the use of over-the-counter (OTC) products.

Patients may underestimate their medical problems, resulting in an ineffective treatment. Additional hazards of psychotropic herbs include overuse or abuse, side effects, and herb-drug interactions. For example, ma huang and kava are abusable herbs, and each may cause side effects. St. John's wort seems to cause few side effects but raises concern about drug-herb interactions, as does kava.

MA HUANG

Ma huang, also known as ephedra, is a Chinese healing herb used for thousands of years. The ephedra plant is a strange-looking, short, brushy shrub. Its stems contain the active constituent from which the stimulant ephedrine is now synthesized. The ephedra plant also produces ephedrine's stereoisomer, pseudoephedrine.⁷ Ma huang is not at all exotic; everyday OTC cold preparations are derived from it. Pseudoephedrine is the favored active ingredient in nondrowsy OTC cold and sinus decongestants. Phenylpropanolamine (PPA) and amphetamine are synthetic progeny.⁸ White PPA is used in decongestants, and it is a popular ingredient of OTC appetite suppressants.

Ephedrine was once used to treat a variety of conditions, including asthma, hypotension, and depression. More effective medications have largely replaced it for treatment of serious disorders, but it is still available as an OTC bronchodilator, an anorectic agent, and an energy-enhancer. Typical side effects of ephedrine and its relatives include increased heart rate and blood pressure, insomnia, and anxiety. Serious problems most frequently involve the nervous and cardiovascular systems. The FDA has received hundreds of complaints about illness, and even death, associated with ephedrine use⁹ and is interested in limiting the use of these products.

There is also a link between the ephedra plant and substance abuse. The Drug Enforcement Administration has known for some time that ephedrine and pseudoephedrine are used to produce the increasingly popular illicit stimulant methamphetamine. Recently, cases of OTC stimulant abuse have been reported for

ephedrine, pseudoephedrine, and PPA. Patients at risk seem to include those with other substance use disorders and eating disorders as well as night-shift workers⁴ and female athletes.¹⁰

ST. JOHN'S WORT

Many herbs claim to boost mental health. One of the most popular "mood elevators" is St. John's wort, *Hypericum perforatum*. The mechanism of action is not fully understood; however, it is believed to affect several neurochemical pathways. The herb acts as a weak monoamine oxidase inhibitor, perhaps involving serotonin-specific activity.¹¹ Some evidence suggests an important role for gamma-aminobutyric acid receptors.¹²

This herb can cause mild fatigue and gastrointestinal upset. More significantly, it can cause photosensitivity, as do some prescription antidepressants.¹³ One of the active constituents in St. John's wort is hypericin, which is probably responsible for photosensitivity, especially in people with light skin. Patients should be advised to wear sunscreen. This side effect is usually transient and resolves once the herb is discontinued.¹²

Little has been written about the drug interactions of herbs. Anecdotal reports describe interaction between St. John's wort and some commonly used medications such as alprazolam, nifedipine, sertraline, gabapentin, and haloperidol. Research appears to support these observations; findings indicate that St. John's wort inhibits cytochrome P-450 isoenzymes. This interaction could increase blood levels of the drugs that are metabolized by those isoenzymes.¹⁴ Alternatively, some physicians warn that hepatic enzymes may be induced, thus decreasing the bioavailability of some drugs.¹² Such interactions will likely be clarified as scientists learn more about the active constituents and clinicians gain experience with their use.

The potential for drug interactions is important because patients most concerned about their mental health may also take prescription medications. Some psychotropic med-

ications work well together; however, it is not yet known whether St. John's wort will prove to have a role in boosting the therapeutic effect of prescribed antidepressants. Initial research suggests that clinicians should consider drug-herb interactions when symptoms arise that may relate to drug or herb toxicity and when counseling patients about the use of psychotropic herbs.

KAVA

An article in the *Wall Street Journal* recently referred to kava—*Piper methysticum*—as the latest herbal superstar. It has been used as a relaxing beverage for centuries in the South Pacific. In the United States, it is marketed in a variety of forms, including powder-containing capsules. Its mechanism of action is not known, but scientists assume it resembles that of benzodiazepines.² Like St. John's wort, kava is also thought to be metabolized by the cytochrome P-450 system and may have the potential to interact with other herbs or drugs. Because it is a sedative, it can act synergistically with other sedatives.

Reports of kava abuse have emerged over the past 15 years, especially when used outside the structure of ceremonial rites in Aboriginal communities.¹⁵ Excessive use of kava is associated with social problems as well as neurologic side effects, including dystonic reactions, seizures secondary to intoxication or withdrawal, and an acute neurologic syndrome characterized by generalized choreoathetosis that responds to intravenous diazepam.¹⁶ A search of U.S. medical literature yields little about kava and its ill effects. However, side effects may include gastrointestinal upset, dizziness, ataxia, and sedation. Heavier use may produce vision and hearing impairment, a yellow discoloration of the skin and nails, as well as liver dysfunction.²

CONCLUSION

Physicians should ask their patients about their use of herbal products and advise patients with substance use disorders to avoid herbs with abuse potential, such as ma huang and kava. Herbs carry the risk of side effects, just like other medications,

and interactions between herbs and other medications is possible. Pregnant and nursing women should be advised to avoid herbal products that have not been adequately tested, and patients should be made aware that the FDA provides little oversight of these products. Therapeutic doses have not been established, and indications for the use of herbs have not been approved.

Psychoactive herbs have been popular for centuries. Some patients prefer the alternative medicine option. Physicians who understand and respect herbal therapeutics are more likely to help like-minded patients make safe choices. Physicians should be aware of the possible benefits of herbal remedies, while paying attention to their risks. There is still much to learn about the efficacy and toxicity of herbal products. As more Americans turn to medicinal herbs, physicians must educate themselves about this new class of drugs. **MM**

Joyce Tinsley is the section head of addiction psychiatry in the Department of Psychiatry and Psychology at the Mayo Clinic in Rochester.

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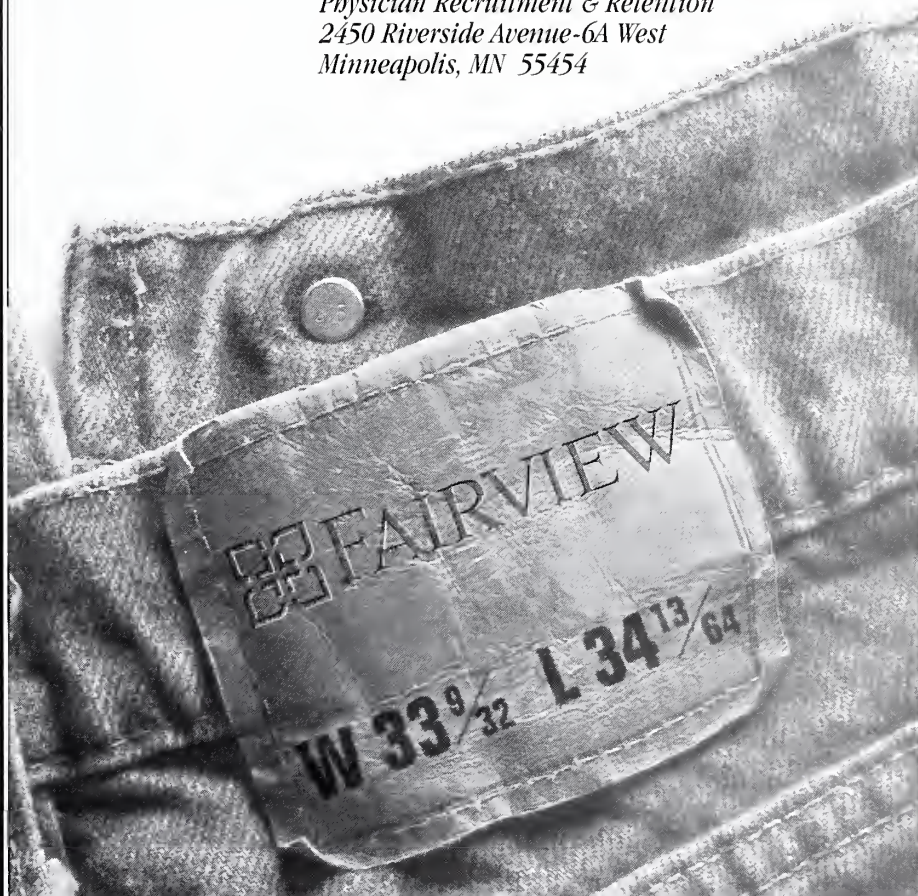
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ANNOUNCEMENTS



MMA Invites Officer Nominations

The MMA Nominating Committee is beginning the process of nominating candidates for the MMA offices of president-elect, vice president, secretary, treasurer, and vice-speaker of the MMA House of Delegates.

Elections will be held at the 1999 MMA Annual Meeting in Brainerd September 26-28.

If you are interested in running for election, or if you would like to nominate another MMA member, please contact your representative on the nominating committee.

Members of the nominating committee are: Kent Wilson, M.D., chair; Lyle Swenson, M.D. (East Metro); Henry T. Smith, M.D. (West Metro); Nicholas Bernier, M.D. (North Central); Paul B. Sanford, M.D. (Northeast); Knute E. Thorsgard, M.D. (Northwest); Roy F. House, M.D. (Southeast); and Terence P. Cahill, M.D. (Southwest).

MMA Wins Tax Repeal Provision in House Bill

In response to vigorous Minnesota Medical Association lobbying and grassroots efforts, the House Tax Committee on April 22 adopted an amendment that calls for elimination

of the sick tax. At the latest, the tax would be gone by January 1, 2002. According to this proposal, the tax would remain at 1.5 percent in the year 2000, drop to .5 percent in 2001, and be eliminated by 2002. If there is a \$50 million sur-

plus in the November 1999 state budget forecast, the tax would drop to zero in 2001. If there is a \$200 million surplus, the tax would be gone by the end of this year.

When House Republicans and Democrats unexpectedly joined together April 16 to adopt a major income

tax proposal that put repeal of the sick tax in jeopardy, the MMA reacted quickly. The size of the income tax cut together with other tax reduction commitments raised concerns that there would not be

sufficient funds to replace the sick tax. The sick tax provides funding for MinnesotaCare, a program to help low-income working people buy medical insurance.

House Republicans seemed ready to back away from their commitment to repeal the tax this

year, and there was a clear danger the House bill would not call for repeal of the sick tax. To generate grassroots support for repeal, the MMA sent out legislative alerts to MMA members asking them to call their representa-

“ It is imperative that the House bill goes into conference committee with very strong language calling for repeal. ”

Dave Renner, MMA director of state and federal legislation

TAX cont. on 35

MMA Supports Patient Rights Bill

The Minnesota Medical Association joined the American Medical Association recently in urging Congress to support comprehensive patient protection legislation. In letters to Minnesota senators and representatives, the MMA urged support for patient protection, including:

- medical necessity determined by prudent physicians,
- external review when a health plan denies needed medical care, and

• information disclosure about available covered medical benefits, quality assurance protections, and utilization review methods.

Although it is unlikely that the national patient rights legislation will be considered before Congress adjourns this month, it is important to keep legislators informed about MMA support for federal patient protection because parts of the legislation may appear in amendments to other bills. ■

VIEWPOINT

Judith F. Shank, M.D.
MMA President



MMA Physicians Stand Up for Science

Increasingly, physicians are called upon to defend the value of science. In recent weeks, we have seen an attack on the research labs at the University of Minnesota and the introduction of legislation that could lower the high standard of health care in Minnesota.

Our modern practice of medicine is built upon research and discoveries about the medical techniques that work best. We no longer live in fear of diseases that terrified earlier generations—polio, diphtheria, and pneumonia. Women look forward to childbirth as a joyous occasion rather than a reason to draw up their wills.

Our rational, scientific approach makes it extremely difficult to understand those who would turn back the clock to an earlier, less healthy age.

We were appalled by the recent assault by the Animal Liberation Front (ALF) on University of Minnesota research laboratories, which resulted in smashed computers, lost research data, graduate students losing years of work toward their degree, damaged microscopes, a financial loss of more than \$2 million, a serious setback for a possible cancer vaccine for humans, and destruction of valuable research on Alzheimer's,

Parkinson's, and other neurological diseases.

Even the liberated animals didn't fare too well. Many of the rats and pigeons released into the wild seem to have died painful and useless deaths.

The raid is only an extreme example of an ongoing campaign against animal research. It is based on a worldview that places an equal value on salamanders, rats, and human beings. An ALF spokesperson said, "I don't count myself or any human as more important than any animal that has a capacity to feel pain."

Salamanders and rats are interesting creatures, but our patients come first. MMA policy supports the humane use of animals for biomedical research. Not all scientific and safety questions can be answered without animal testing. In fact, it is against federal law to market a product as a food, drug, or cosmetic unless it has first been tested on animals.

In 1997, our MMA adopted guiding principles supporting humane treatment of research animals and the use of anesthesia or analgesics for painful procedures. Research projects should be approved by review committees for scientific sound-

ness and compliance with all laws, regulations, policies, and procedures. The committees should consider whether alternatives to animals are appropriate and limit projects to those absolutely necessary to conduct accurate research.

Policies on animal research at the University of Minnesota are in line with MMA policy. The Institutional Animal Care and Use Committee at the university carefully oversees research projects to ensure that the highest scientific and ethical standards are maintained and that alternative research methods are explored.

Recently, the MMA wrote to the *Star Tribune* decrying the attack and supporting humane animal research.

We also oppose less dramatic examples of antiscientific trends. Our MMA fought successfully to block legislation that would have prevented action against alternative care providers unless patients could prove "serious direct mental or physical harm." We continue to oppose a bill that would license traditional midwives and could allow them to establish nonhospital birthing centers.

Our MMA will continue to stand up for science and medicine in Minnesota. ■

Ken Crabb Nominated for AMA Council Seat

The Minnesota Medical Association, the American College of Obstetricians and Gynecologists, and the North Central Medical Conference have endorsed Kenneth W. Crabb, M.D., for a seat on the American Medical Association's Council on Scientific Affairs.

Crabb, who specializes in obstetrics and gynecology, represents Minnesota as an alternate delegate to the AMA House of Delegates.

Crabb is also a clinical associate professor in the Department of Obstetrics and Gynecology at the University of Minnesota and an editorial board member of Allina's

medical journal. The Council on Scientific Affairs reviews developments



Kenneth W. Crabb, M.D.

in medicine and biomedical research. It advances the science of medicine in order to improve the quality of patient care, enhance medical progress, and further the health of the public. The CSA also advises the AMA on promising developments in scientific aspects of medicine and biomedical research and undertakes public information activities.

Contributions to Crabb's national campaign fund may be sent to the "Dr. Kenneth Crabb Campaign Fund," Minnesota Medical Association, 3433 Broadway St. NE, Suite 300, Minneapolis, MN 55413. ■

TAX cont. from 33

tives and press for repeal.

Paul Sanders, M.D., MMA CEO, wrote Speaker of the Minnesota House of Representatives Steve Sviggum, R-Kenyon, and Minnesota House Republican Majority Leader Tim Pawlenty, Eagan, urging them to keep their promise to "fix" the provider tax.

Sanders also testified before the House Tax Committee April 20, reminding legislators that the provider tax increases the cost of health care for everyone, with the burden falling most heavily on those who can least afford it—sick and low-income Minnesotans. He emphasized that the state's one-time tobacco settlement funds and the budget surplus in the MinnesotaCare fund would provide more than adequate financing for MinnesotaCare for years into the future.

Two Senate bills calling for repeal of the tax, S.F. 7 and S.F. 176, were passed last month by the Senate Health and Family Security

MMA Asks for Nominations

The Minnesota Medical Association will present several awards during the 1999 MMA Annual Meeting in Brainerd September 26-28.

The MMA Physician Communicator Award goes to a member who has shown "exemplary skills" in communicating with the public. To submit a nomination, call Lorie Holmgren at 612/378-1875 or 800/DIAL MMA (800/342-5662).

Committee, but the budget committee did not include S.F. 176 in its omnibus funding bill.

"S.F. 7 was referred to the Tax Committee, but we are not expecting it in the Senate omnibus tax bill," said Dave Renner, MMA director of state and federal legislation. "So it is imperative that the House bill goes into conference committee with very strong language calling for repeal." ■

Young physicians who have made outstanding contributions to their communities will be considered for the MMA achievement award, the Edward Purcell, M.D. Award for Exemplary Service. Any MMA member physician under age 40 who has compiled an outstanding record of community service is eligible for nomination. For more information, or to nominate an MMA member, call Karen Tourdot at 612/378-1875 or 800/DIAL MMA (800/342-5662).

The Minority Meritorious Service Award is given to a doctor of medicine or a doctor of osteopathy in Minnesota who has provided significant medical service to minority populations. Nominations must include a description of the medical service and a letter of support. To submit a nomination, call Wendy O'Donnell at 612/378-1875 or 800/DIAL MMA (800/342-5662).

The deadline for nominations for these awards is July 1. ■

Community Service Award

The MMA's Community Service Award honors an MMA physician who has an outstanding record of community service. A typical candidate might be a physician who:

- helps make free clinical care available to the needy;
- serves as a public official;
- coaches an athletic team;
- is a leader in promoting cultural or arts activities; or
- is a leader in expanding voluntary health programs.

The Community Service Award will be presented at the MMA Annual Meeting in Brainerd on September 27, 1999.

If you know a physician who qualifies for this award, please fill out the attached nomination form and return it to Karen Tourdot, Minnesota Medical Association, 3433 Broadway Street NE, Suite 300, Minneapolis, MN 55413-1761.

MINNESOTA MEDICAL ASSOCIATION PHYSICIAN AWARD FOR COMMUNITY SERVICE NOMINATION FORM

Qualifications

1. The recipient must be a physician member of the Minnesota Medical Association licensed to practice medicine in the state of Minnesota.
2. The recipient must be living. Awards are not presented posthumously.
3. The recipient must have compiled an outstanding record of community service, which, apart from his or her specific identification as a physician, reflects well on the profession.

Name of nominee: _____

(Home address)

(Business address)

(Home telephone)

(Business telephone)

Describe why this person should receive the MMA Community Service Award: _____

(Supporting information may be attached.)

NOMINATION SUBMITTED BY:

(Name - please print)

(Telephone)

(Address)

NOMINATIONS DUE ON OR BEFORE JULY 15, 1999

NEWS DIGEST

*People and places
making medical news*



People & Places

K. James Ehlen, M.D., president of **Allina Health System**, announced his resignation in April, three weeks after the board of the Minnetonka-based organization appointed **Gordon Sprenger** chief executive officer. Previously, Ehlen and Sprenger, who was executive officer, both had direct accountability to the board, a relationship that had been in place since 1994.

Sprenger, who is planning to retire in a few years, and Ehlen had recommended to the board that there be one top executive. The board accepted the recommendation but chose Sprenger to fill the position.

"It would have been a good time for them to move me into that position," Ehlen said in a Minneapolis *Star Tribune* article. "They didn't and I decided I wouldn't give them that opportunity [later]."

Terril Hart, M.D., chair of the Allina board, said the board chose Sprenger because of his extensive experience in direct operation of a system. Ehlen said he hopes to join another health care system after taking some time off.

Todd M. Tuttle, M.D., recently received a three-year appointment as cancer liaison physician for the Hospital Cancer Program at **Methodist Hospital Healthsystem Minnesota**. The Cancer Liaison Program is an integral part of the Commis-

sion on Cancer of the **American College of Surgeons**. Tuttle is one of more than 1,800 volunteer cancer liaison physicians nationwide.

The 600-member **Lake Superior Medical Society** has named **David Luehr, M.D.**, as its new president. The society includes physicians from South St. Louis, Carlton, Cook, and Lake counties in Minnesota. Luehr is a family practitioner at the **Raiter Clinic** in Cloquet, Minnesota. He graduated from the **University of Minnesota Medical School** and is board-certified in family practice.

Minnesota Commissioner of Health **Jan Malcolm** appointed **Julie Brunner** as deputy commissioner of the **Minnesota Department of Health**. Brunner will help develop department policy and manage all departmental business operations. For the past three years, Brunner was the county administrator for St. Louis County. Previously, she was assistant commissioner of the **Minnesota Department of Human Services**, overseeing legal and intergovernmental programs.

South Minneapolis physician **Marianne Mason Westerheim, M.D.**, was named winner of the 1999 Fairview Cares Award, a \$10,000 award given by Fairview Health Services in recognition of community service. Westerheim was honored for her persistence in

medical mission work in Guyana after her 22-month-old daughter, Danielle, died of an *E. coli* infection, which she had contracted in South America during the family's mission. The Westerheims, who have since returned to Guyana to complete their work, established the commemorative **Danielle's Hope Foundation** through the **Catholic Medical Mission Board** to fund equipment and supplies for a hospital and school in Guyana.

Gov. Jesse Ventura awarded **Dorothy Hatsukami, Ph.D.**, the Governor's Award for a Better Minnesota in recognition of her research on the addictiveness of nicotine. The award honors Hatsukami for her leadership and her personal contributions to Minnesotans. Hatsukami is a professor of psychiatry and a member of the **University of Minnesota Cancer Center**. She is also president of the **Society for Research on Nicotine and Tobacco**. Hatsukami's research interests include the biological basis for nicotine and cocaine addictions and determining sex differences and the role of sex hormones in physical addiction to nicotine.

The **American Medical Association Foundation**, the philanthropic arm of the **American Medical Association (AMA)**, announced the dis-



tribution of more than \$24,000 to Minnesota medical schools in April. The funds were distributed in partnership with the Minnesota Medical Association to medical school deans as part of the AMA Foundation's annual fund-raising effort to help defray medical education costs and to support medical research.

The University of Minnesota Medical School recently received a gift of \$5 million, the largest in its 110-year history, from the estate of Edmund Tulloch and his wife, Anna Tulloch. Medical School Dean Alfred E. Michael, M.D., said some of the gift will be used to establish the Tulloch Chair in Genetics and Neuroscience.

A native of Iowa, Tulloch grew up in Minneapolis and graduated from the U's business school in 1932. He worked as a traveling salesman, then was in military service until 1946, when he went to work in the Office of Civilian Personnel Headquarters in Tokyo. He and his wife, whom he married in 1953, lived in Tokyo until 1959. They then moved to the San Francisco area, where he worked with the Bureau of Alcohol, Tobacco and Firearms until 1976. Anna died in 1981, and Edmund, in February 1998. According to the *St. Paul Pioneer Press*, the gift, which will be administered by the non-profit Minnesota Medical Foundation, was entirely unexpected. Dan Saftig, of the MMF, said that Tulloch "had a fondness for the University of Minnesota and knew of the medical school and the work that is being done here."

St. Luke's Hospital & Regional Trauma Center in Duluth announced plans to open **St. Luke's Center for Holistic Healthcare**, a center that will combine traditional and holistic medicine. Family practice physicians Sarah Nelson, M.D., and Nancy Sudak, M.D., are leading the venture, which is scheduled

to open in Duluth's **Northland Medical Center South** on June 1, 1999.

Bloomington-based **HealthPartners** is expected to send more of its patients to **North Memorial Medical Center** in Robbinsdale because of a dispute with **Methodist Hospital** over how much the St. Louis Park hospital should be paid, according to the Minneapolis *Star Tri-*

bune. Methodist previously was the primary hospital for patients at some clinics owned by HealthPartners in the west-metro area. HealthPartners already refers its Brooklyn Center, Spring Lake Park, and Maple Grove clinic patients to North Memorial. Methodist had gotten about 10 percent of its volume from HealthPartners. ■



Socioeconomics

Medica Will Retain \$12 Million of Physician Reserve Fund

For the second year in a row, **Medica Health Plans** will keep part of a physician reserve fund that is normally paid back to the 8,000 doctors who participate in the **Medica Choice** network. Medica will retain \$12 million from the fund to offset its 1998 operating loss. The \$12 million will help absorb some of the loss but won't cover it completely.

Medica's loss for 1998 exceeded 1997's operating loss of \$24 million. In 1997, the company kept \$5.8 million of the physician reserve fund, which is made up of payments withheld from physicians—typically 10 percent to 15 percent of physician fees. As part of its contract with physicians, Medica has the right to keep part of the reserve, but physicians usually receive all of the money in the fund.

For 1998, the reserve fund accumulated \$30 million, of which Medica will keep 40 percent, while \$18 million will go back to doctors.

"When they start holding back a percent of the reserve, that means doctors are seeing patients for less money," said Dave Thorson, M.D., president of the **Minnesota Academy of Family Physicians**, in a Min-

Minnesota HMOs Will Get Higher Medicare Pay Increases

Next year HMOs in Minnesota and some other states will receive higher Medicare payment increases, according to an announcement by the federal government. Last fall, more than 10,000 seniors in the state were forced to find different Medicare coverage when many HMOs serving Medicare recipients scaled back or pulled out of the program. Under the new rates, payments to Twin Cities-area Medicare HMOs will increase between 7 percent and 12 percent.

Last year, reimbursement rates increased just 2 percent, and some Medicare HMOs significantly increased their premiums for enrollees. "This is better than expected," said George Halvorson, HealthPartners chief executive, in a Minneapolis *Star Tribune* article. "This will help us keep premiums down."

In announcing the rate changes, the government said it was taking the first step toward narrowing the disparities created by Medicare's payment formula, which was devised in the 1980s.

neapolis *Star Tribune* article. "Reimbursement is so low that you can't afford to take those patients on."

Minnesota HMOs Lose Money again in 1998

Minnesota health plans lost about \$58 million in 1998, the second consecutive year of losses, because premiums didn't keep up with rising health care costs. Industry executives partly blame the higher costs on the ever-faster pace at which new drugs and technology are introduced.

"Health plans are financially stable and are not at risk of going under," said Michael Scandrett, executive director of the Minnesota Council of Healthplans, in a Minneapolis *Star Tribune* article. "If all of the health plans had raised their prices by \$2 per member per month at the beginning of last year, all of the health plans would have made money," said HealthPartners CEO George Halvorson in the *St. Paul Pioneer Press*. Premiums are expected to go up in the coming year.

Other reasons for higher costs are increases in office visits and hospital admissions. Yet that doesn't mean more money for doctors. Judy Shank, M.D., president of the Minnesota Medical Association, pointed out in the *Star Tribune* that physicians' compensation continues to decline. "Our expenses go up every year, and our payments go down. It has been getting harder and harder, especially for independent physicians, to stay in practice."

Minnesota Seniors Pay More for Drugs than HMOs Do

Minnesota seniors are paying significantly higher prices for drugs than are HMOs, insurance companies, and government purchasers, according to a study prepared for Sixth District Congressman Bill Luther, a Democrat. The report

shows that the difference between what preferred customers pay and what seniors pay averages 124 percent. The average difference for other common consumer items is 22 percent.

Increasing numbers of seniors in Minnesota and other states have been traveling to Canada or Mexico to get prescriptions filled. Luther has cosponsored the Prescription Drug Fairness for Seniors Act, which would extend more favorable pricing to Medicare customers. Several other bills and proposals are being discussed in the state and federal legislatures.

Judge Approves Blue Cross Tobacco Plan

Blue Cross and Blue Shield of Minnesota should be allowed to spend \$469 million in tobacco settlement funds on smoking cessation and

health-improvement programs, an administrative law judge ruled in March. The judge, George Beck, dismissed arguments that the money should be rebated to Blue Cross subscribers. Beck made the recommendation to Gary LaVasseur, a deputy commissioner at the Minnesota Department of Commerce, which has regulatory authority over Blue Cross.

In his ruling, Beck said that Blue Cross has the discretion to decide how it will spend the funds and state law does not require that rebates be given. Beck added that the Blue Cross plan would benefit subscribers and the general public. Opponents of the proposal said the judge's decision does not settle anything and that they hoped Deputy Commissioner LaVasseur would reject the recommendation. ➡

St Cloud State University Staff Physician-Student Health Services

St. Cloud State University Student Health Services is accepting applications for a 75% time (academic year) staff physician. This physician will join one physician and two Nurse Practitioners in providing primary medical care for a diverse population of 14,000 students. The Student Health Services is an AAAHC accredited ambulatory care clinic with an In-house laboratory and pharmacy. The clinic is open Monday - Friday. This is a 40-hour per week position with no evening or weekend call.

Responsibilities: Provide direct medical care and health education for student population. Provide clinical consultation for other medical and nursing staff. Participate in quality assessment and management program. Participate in public health related services provided to campus community. Director of laboratory services.

Qualifications: License to practice medicine in Minnesota. BE/BC in family practice or other appropriate specialty. DEA License. Minimum of two years experience in ambulatory care.

Benefits: Comprehensive benefits package, including retirement plans, malpractice coverage and paid CME.

Application process: Completed applications will be reviewed beginning June 1, 1999. Starting date is August 30, 1999. SCSU is committed to excellence and actively supports cultural diversity. To promote this endeavor, we invite individuals who contribute to such diversity to apply, including minorities, women, persons with disabilities and veterans. Interested applicants must send a letter of application, curriculum vita, and the names of references (including address and phone number) to: Lynda Gans, Associate Director Student Health Services St. Cloud State University, 720 4th Avenue South, St. Cloud, MN 56301-4498.

New Ulm Medical Center

Amidst the prairies of southern Minnesota, the city of New Ulm is renowned as a scenic community of parks, historic sites and beautiful homes. A diverse industrial base, outstanding schools and comprehensive health-care services have played major roles in the growth and success of New Ulm. The New Ulm Medical Center is currently looking for physicians to fill the following needs: **OB/GYN, Family Practice, Internal Medicine, Orthopedics, Pediatrics**, and a part-time **Radiologist**. Generous salary and benefits are available.

For more information, please call
1-800-248-4921 or
e-mail: dmodder@allina.com.



Research & Innovations

Flu Shot Lowers Risk of Death for Elderly, Study Shows

Getting a flu shot each year can save the lives of thousands of older adults with chronic lung diseases such as emphysema and bronchitis, according to a study by Kristin Nichol, M.D., chief of medicine at the Minneapolis Veterans Medical Center and a nationally known flu researcher.

Each year, as many as 40,000 Americans die after developing complications of influenza, and thou-

sands more are hospitalized, according to the Centers for Disease Control and Prevention. Nichol's study, published in the March *Annals of Internal Medicine*, shows that a significant number of these deaths and hospitalizations could be prevented by flu vaccinations.

Nichol tracked more than 1,800 Twin Cities residents for three years and found that vaccinated older adults with chronic lung disease were 70 percent less likely to die of influenza complications than their unvaccinated counterparts.

Mayo, Hormel to Study Pig-to-Human Virus Transmission

Mayo Clinic and Hormel Foods Corp. are collaborating on a study

of workers who handle swine tissue and fluids to determine whether porcine endogenous retrovirus, common to all swine, is transferred to the workers. The study is part of a Mayo research program on xenotransplantation; as part of the program, Mayo also intends to raise genetically altered pigs. The fear that animal viruses might be transferred to humans is one of the remaining hurdles to xenotransplantation, which is viewed as a possible solution to the severe shortage of human organs for transplantation.

Mayo researchers plan to take blood specimens from and interview 300 workers at Hormel, in Austin, Minnesota, and Quality Pork Processors, the slaughtering company that supplies Hormel with carcasses.

Cartilage Cell Implants Hold Promise, 'U' Researchers Say

New treatments offer promise as alternatives to knee replacement in patients with osteoarthritis or damaged cartilage, say two researchers at the University of Minnesota. One procedure implants new cartilage cells in the damaged knee, resulting in "significant improvement in patient function and symptoms" after two years, write Rob LaPrade, M.D., and Marc Swiontkowski, M.D., in the March 10 *Journal of the American Medical Association*.

LaPrade, assistant professor of orthopedic surgery, said the ideal candidate for the procedure is less than 45 years old, with a small area of arthritis on the end of the thigh bone. He and Swiontkowski, chair of the U's Orthopedic Surgery Department, said that more tests are needed to determine if the implants are effective over the long term.

Also promising is grafting healthy cartilage from one area of the thigh bone to the damaged area, and injecting hyaluronic acid into arthritic knees. ■

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Natural Options for Menopause

Because nonpharmaceutical alternatives to hormone replacement therapy appeal to many women, physicians should be aware of these treatments.

By Sharon Norling, M.D.

More than 8 million women in the United States will turn 50 this year. As many more baby boomers turn 50 in the next decade, the medical world will encounter the largest number of menopausal women in history.

Patient demand for treatment of the perimenopausal transition, menopausal symptoms, and complications of estrogen deficiency is rising dramatically. Although health professionals strongly advocate estrogen replacement therapy, fewer than one in four candidates take postmenopausal estrogens.

The media, bookstores, health food stores, and the Internet are replete with ads and promotions for alternatives to hormones—and women are buying these alternative remedies, reflecting the general trend toward greater use of alternative medicine in the United States. A recent study showed that the number of adults using at least some form of alternative therapy during the previous year jumped from 33.8% in 1990 to 42.1% in 1997.¹ Alternative practitioners logged 629 million visits in 1997.¹ The rise in the use of herbal remedies is also notable.

The use of plants as primary medicines predates written history. Today, sales and use of botanicals as dietary supplements have grown tremendously, and research continues to document their potential utility as natural preventive medicines.

Herbal therapies are also increas-

ingly used instead of or in addition to traditional medicine for perimenopausal and menopausal complaints. Many women who seek these remedies believe that herbal therapies are “natural” and therefore, safe. With the burgeoning number of herbal products available to consumers and the conflicting data regarding their efficacy, making appropriate choices can be bewildering. Consumers should learn as much as they can about herbs they are considering using.

Likewise, clinicians must be knowledgeable about the use, quality, and safety of herbal products. First and foremost, providers must understand that herbs are drugs, and, like other drugs, they carry safety risks. Consumers and providers must be aware of safety issues involving doses, source, quality, and purity of the herbs. The amount of active ingredient in herbal preparations varies widely from product to product, for example. It is also important to realize that, as dietary supplements, herbs cannot be marketed for the prevention or treatment of disease. Finally, despite these risks, herbs cannot be ignored as an important source of therapy.²

All postmenopausal women should have a customized plan for health maintenance, which may or may not include hormone replacement therapy. Additionally, health care providers should counsel women about healthy lifestyles, encouraging a low-fat diet, regular weight-

bearing exercise, smoking cessation, and stress reduction. Many women can also benefit from a holistic approach to health that includes a variety of complementary therapies, such as aromatherapy, vitamin therapy, meditation, and herbal supplements. What follows is a guide to some nonpharmaceutical treatments for menopausal symptoms.

PHYTOESTROGENS

Phytoestrogens are a family of plant compounds that have been shown to have estrogenic and antiestrogenic properties. Two of these compounds, isoflavones and lignans, have been identified in human body fluids. A wide range of common foods contain appreciable amounts of these phytoestrogens; examples include tofu, soymilk, soy burgers, texturized soy protein, soybeans, soy nuts, beans, and whole grains.

Accumulating evidence from molecular and cellular biology experiments, animal studies, and, to a limited extent, human clinical trials, suggests that phytoestrogens may confer health benefits related to cardiovascular disease, cancer, osteoporosis, and menopausal symptoms.³ These findings are consistent with the epidemiological evidence that rates of heart disease, various cancers, osteoporotic fractures, and menopausal symptoms are more favorable among populations that consume plant-based diets, particularly those that are high in soy products.

Soy-derived phytoestrogens are abundant in traditional Asian diets. Asian women typically ingest 40 mg to 80 mg of isoflavones per day, whereas Americans average less than 3 mg per day. Research shows that in China and Japan, women express few menopausal complaints and have a low incidence of breast cancer.³

NATURAL PROGESTERONES AND ESTROGENS

Informational materials about natural progesterones and estrogens often cite primary sources selectively or inaccurately. While a healthy degree of skepticism about the claims made for natural progesterones is appropriate, the misuse of data is not confined to the alternative medical community; poor science permeates the conventional medical literature as well.

TOPICAL PROGESTERONE

Many providers and consumers involved in menopause management believe that there is a substantial difference between naturally occurring and synthetic progestins. Commercially prepared topical progesterone creams are usually USP Progesterone, most of which is manufactured by Upjohn and sold in bulk to compounding pharmacies, which then make capsules, oils, tabs, gels, and other formulations. Although the topical creams typically do not contain enough progesterone to achieve serum levels, many women report relief from perimenopausal and menopausal symptoms when using them.

No biopsy-confirmed studies document that topical progesterone and cosmetic creams counteract the endometrial proliferation induced by the administration of exogenous estrogen. Therefore, women who use progesterone creams as a form of progestational opposition while taking estrogen should be treated as if they were taking unopposed estrogen.

ORAL MICRONIZED PROGESTERONE

Oral micronized progesterone has been the subject of studies and represents one arm of the ongoing postmenopausal estrogen/progestin intervention (PEPI) trials.⁴ The dose for adequate endometrial oppression is

300 mg per day in doses of 100 mg in the morning and 200 mg at night. Micronized progesterone is said to produce "excellent blood levels without the unwanted effects such as fluid retention, breast tenderness, weight gain, and depression seen in the synthetic preparations."⁵

NATURAL ESTROGENS

Not all estrogens are equal. Advocates of alternative medicine have embraced estriol as the estrogen of choice. Compounding pharmacies in the United States are compounding estrogen replacement therapy pills, gels, and capsules that contain 10% estradiol, 10% estrone, and 80% estriol. Endometrial biopsies in women who were treated with estriol only, estradiol only, and the two in combination showed similar histological changes. These "triest" estrogen preparations do mitigate menopausal symptoms. Patients who take the triest pill have estrone and estradiol levels well within the therapeutic range, according to studies.⁵ All exogenous postmenopausal preparations available in the United States achieve remarkably similar serum levels of estrone and estradiol through bioconversion. Therefore, it is not surprising that a triest preparation achieves appropriate therapeutic levels of estradiol and estrone.

If patients elect to use gels and compounded oral estrogens, serum estriol and estrone should be measured. Dosage should be adjusted if it is not in the therapeutic range; an acceptable level for estradiol is 60 pg/ml to 100 pg/ml. Levels over 150 pg/ml are considered excessive. Compounded oral estrogens, like triest, are an option for women who have had problems with other formulations.

BOTANICALS USED IN MENOPAUSE

Fortunately, the botanicals used to treat menopause, menstrual disorders, and aging are relatively safe and benign. Many menopausal women use *Ginkgo biloba* to improve short-term memory loss. Ginkgo is approved in Germany for the treatment of dementia, and a growing body of research in the United States indi-

cates that ginkgo is effective in treating these problems. Because of ginkgo's antiplatelet activity, it can cause bleeding problems.

Native American women traditionally have used black cohosh (*Cimicifuga racemosa*) to treat menopausal symptoms. It has been used in Germany for about 50 years and is approved by the German Commission E for use with premenstrual discomfort and menopausal symptoms. Studies have found that black cohosh binds to estrogen receptors, and researchers postulate that the herb has estrogenic effects.⁶

Dong quai (*Angelica sinensis*) is another herb used by many menopausal women, some of whom report that it helps relieve hot flashes. In the first randomized, placebo-controlled clinical trial of dong quai for the treatment of menopausal symptoms, investigators found no statistically significant difference in the number of hot flashes and the vaginal maturation index. The authors concluded that dong quai, when used alone, does not help relieve menopausal symptoms. Dong quai is typically used as one of several components in traditional Chinese herbal formulas. Additional studies are needed to clarify the role of dong quai singly and in herbal formulas.

Ginseng has an estrogenic effect that has been demonstrated in humans. In a recent placebo-controlled trial, ginseng was shown to provide some relief of menopausal symptoms, particularly depressed mood, and it improved self-reported general health and well-being. It was less satisfactory for relieving hot flashes.

In caring for menopausal women, medical practitioners already recommend "natural" health interventions such as smoking cessation, exercise, strength training, and good nutrition. As evidence accrues about the effectiveness of complementary therapies, mainstream medicine needs to be open to integrating proven alternative therapies into practice. We must offer menopausal women the best of both alternative and conventional medicine, based on evidence and on the individual needs of our patients. ➡

Sharon Norling is an assistant professor in the Department of Ob-Gyn and Women's Health at the University of Minnesota.

Author's Note: An important resource for Minnesota physicians and pa-

tients is the Center for Spirituality and Healing at the University of Minnesota. The center provides research, education, and service in complementary and alternative medicine. In July, the center will open a clinic in conjunction with Fairview-University

Medical Center to provide complementary care services. For more information, call 612/624-9459.

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Safety and Quality Concerns Related to the Use of Herbal Therapies

Physicians should be prepared to discuss issues of safety and quality with their patients who are considering using herbal supplements.

Jodi A. Chaffin, R.PH.

Herbal products are heavily marketed and widely used. Patients take medicinal herbs for several reasons; they may believe in a product's efficacy, perhaps they are following advice from a friend, or they may be dissatisfied with conventional medicine. For many patients, use of or curiosity about herbal products indicates that they want to be in better control of their health. Physicians can support this desire for better health by being open to patients' questions while taking into consideration potential drug and herb interactions and other safety concerns.

Increasingly, patients who self-medicate with herbs for preventive and therapeutic purposes are turning to their physicians for guidance. A public information campaign called Consumers First*, launched in Minnesota in February 1999, urges consumers to seek their physician's advice before taking most herbal products. While evidence supports the use of some herbal products, much of the data is tentative and incomplete. Achieving scientific clarity and sorting through the advertising hyperbole is laborious. Therefore, physicians may need to develop a strate-

gy for talking with their patients about herbal products.

A first step in developing a strategy is to become aware of safety and quality concerns about herbal products. Such concerns include patient perception, plant identification, adulteration, contraindications and interactions, and inappropriate use.

SAFETY CONCERNS

PERCEPTION

If a patient's perception of herbal therapies is that they are "safe and natural," like eating prunes for constipation, the patient may not recognize the safety issues associated with some herbal products. For example, ephedrine, marketed as a natural weight-loss product, poses serious safety concerns. Ephedrine is an isolated constituent from the herb ma huang, also known as ephedra. Side effects include tremors, nervousness, insomnia, headache, GI distress, high blood pressure, irregular heartbeat, hyperglycemia, and kidney stones.¹ More than 800 adverse reactions have been reported to the Food and Drug Administration, and ephedrine has been associated with 17 deaths.² The FDA is planning to restrict its use and possibly include label warnings. Many states have already restricted the sale of ephedrine.

A popular brand of ephedrine marketed in the Twin Cities is Metabolife®. Metabolife® contains 18 ingredients, including ma huang

(equivalent to 12 mg of ephedrine per tablet) and the herb guarana. Guarana is a source of caffeine and increases the effects of ephedrine. Ephedrine is also found in herbal formulas promoted for body-building, increasing energy, and heightening awareness and sexual sensations.

IDENTIFICATION

Patients who grow their own herbs or collect them in the wild must be careful about plant species identification and knowledgeable about the plants' actions. Two unusual cases involved pennyroyal, which is a member of the mint family and contains a poisonous oil. The plant was picked in place of peppermint, with tragic consequences. Although in tea form pennyroyal is thought to contain very little of the oil, an 8-week-old infant died after being given tea brewed from the herb's leaves. The infant was admitted to the hospital suffering hypoglycemia and respiratory distress and died from cerebral edema and multiple organ failure. In another case, a 6-month-old was admitted with fever and seizures. The baby recovered from hepatic dysfunction and epileptic encephalopathy, but only after a two-month hospital stay.³

ADULTERATION, MISLABELING, CONTAMINATION

Lacking government and industry regulations, herbal products are subject to possible adulteration or contamination.

*Consumers First is a public safety campaign in response to the high demand for natural products. Address: Consumers First, 8500 Normandale Lake Boulevard, Suite 720, Minneapolis MN 55437. Phone: 877/276-7178. Web site: www.consumers1st.org.

Table

Contraindications/Precautions for Selected Herbs

Herb (common use)	Contraindication/Precaution
Feverfew (migraine prevention)	Do not use in pregnancy; induces menses. ⁵
St. John's wort (mild depression)	Do not use in pregnancy; historically used as an abortifacient; slight uterotonic effects in animal studies; photosensitivity with high dose. ⁶
Echinacea (colds/flu)	Caution in patients with progressive systemic diseases, such as tuberculosis, AIDS, collagen vascular diseases, multiple sclerosis, ⁷ Crohn disease, and rheumatoid arthritis.*
Ginkgo (dementia)	Caution in patients taking anticoagulants or aspirin. ⁸⁻¹⁰ Transient headache and dizziness may be avoided by starting on low dose and gradually increasing dose over 6 to 8 weeks.
Ginseng (energy, aging)	Many reports of adverse reactions have been traced to adulterated products. Prolonged use has been associated with increased blood pressure, insomnia, and uterine bleeding and sore breasts in women. ¹¹
Kava (anxiety, insomnia)	The potential for withdrawal reactions or dependency is unknown. Recreational use can result in a drunken-like state; chronic use can result in dermatitis.
Senna, cascara (stimulant laxatives)	Can deplete potassium levels; caution with diuretics.

*Presentation by Gregory Plotnikoff, M.D., M.T.S., at the University of Minnesota Herb Conference, February 25, 1999.

Adulteration can be intentional, as in the case of an herbal remedy manufactured in China and marketed in the United States. The product, Cow's Head brand Tung Shueh, contained 3.9 mg indomethacin, 16 mg mefenamic acid, 7.9 mg diclofenac, and 0.73 mg diazepam per tablet.⁴ These ingredients were not listed on the label. The directions on the package suggested a dose of four pills three times a day. The great majority of Chinese herbal preparations are safe, however, and closely monitoring them for undeclared drugs and heavy metals could reduce the incidence of adulteration or contamination.

Mislabeling of raw herbal materials has occurred in the United States. Digitalis was found in samples of raw materials labeled "plantain," for ex-

ample. Manufacturers include plantago (common plantain—the herb, not the fruit) in herbal formulas used externally for poultices and internally for infections and bowel and urinary tract irritation. The FDA began investigating after being alerted to the case of a young woman who experienced heart block after consuming a product labeled as containing plantain that actually contained digitalis. Disturbingly, the manufacturers and distributors of the herbal products involved have no effective means of verifying the identity or purity of their herbs.

The table above describes contraindications and recommends precautions for patients taking selected herbs.

INTERACTIONS

Little more than anecdotal evidence exists regarding interactions between pharmaceutical and herbal medicines, and it's difficult to know precisely which products were involved because of quality problems already discussed. Suspected interactions and adverse reactions should be reported to either the Centers for Disease Control and Prevention at 404/639-3311 or the FDA at 800/332-1088.

Following are potential interactions of some commonly used pharmaceuticals and herbal products.

- Pharmaceuticals with stimulant effects may be potentiated with herbs that have stimulant effects, including ephedra, yohimbe, guarana, yerba maté, and ginseng.

- Pharmaceuticals with sedative effects or alcohol may be potentiated with sedative herbs, including valerian, kava, and St. John's wort.

- Herbs that affect platelet aggregation—garlic, ginger, ginkgo, feverfew, ginseng, and bromelain—may potentiate the anticoagulant effects of warfarin or aspirin.

- With pharmaceutical antidepressants and St. John's wort, the risk of an interaction resulting in serotonin syndrome or an MAOI interaction is still being assessed.

- Herbal fibers such as flaxseed and psyllium can reduce absorption of pharmaceuticals.

INAPPROPRIATE USE

Inappropriate use of herbal therapies may be the most significant safety concern today. The widespread availability of herbal therapies sends patients the message that they can self-medicate for all conditions. Physicians need to be aware of their patients' use of herbals to help prevent adverse reactions and to make sure patients receive needed medical treatment. In one case the author is familiar with, a diabetic patient took garlic, ginkgo, vitamin E, and hawthorn to "get his blood moving" to his toe, which was infected. After several months of self-treatment, the man had to have his toe amputated.

In another case, a 24-year-old woman discovered she was pregnant, and unaware that she had an ectopic

pregnancy, began taking pennyroyal and black cohosh to induce abortion. She died. It is unclear whether she died due to complications of the ectopic pregnancy, or if the herbs contributed to her death.¹²

QUALITY CONCERNS

With most herbal products, the process that the raw herb undergoes to reach its final form defines the product. Therefore, the first step in determining the quality of an herbal product is to find out how the raw herb is processed.

For pharmaceutical drugs, manufacturers determine the process and formulation before marketing the product. This is why, for example, some drugs are not marketed in oral forms (they are active only in parenteral form), or why aspirin is not available in a liquid.

Manufacturers of herbal products are not required to determine the process and formulation that result in product activity. Even if the process and formulation are known, other formulations of the product may be marketed. Often, consumers can choose from more than one process or formulation for a given herb. For example, at least five methods have been used to process garlic for commercial products. Each method results in a different constituent in the final product. To choose a commercial garlic product, one must know how the products used in clinical trials were processed or how different methods of production result in different constituents.¹³ If a patient wants to improve his lipid profile, he should choose a fresh freeze-dried or oven-dried product containing alliin or a hydroalcoholic-extracted product containing S-allyl cysteine.¹³ Garlic products produced by steam distillation and oil maceration do not contain either of these compounds and are not expected to improve the lipid profile. Unfortunately, garlic manufacturers often do not provide enough information about the product's processing for consumers to evaluate the herb.¹³

The ginkgo product used in German studies on dementia was manufactured according to a several-step

process that resulted in a concentrated, standardized formulation. Yet crude extracts of ginkgo, which are not concentrated or standardized, are widely available in the United States. Comparisons of the concentrated, standardized ginkgo extract and a crude extract show that the pharmacologic effect of the standardized extract is superior to that of the crude ginkgo extract.¹⁴

Each herb must be evaluated individually to determine what process and formulation are optimal. Some herbs may not require processing. Studies using encapsulated whole dried leaves of feverfew showed positive results for the prevention of migraine;¹⁵⁻¹⁷ while a study using an ethanol extract of feverfew leaves showed no prophylactic effect.¹⁸

In the United States, there is no guarantee that any herbal product contains what the label states. When *Consumer Reports* tested 10 ginseng products, one contained almost no active ingredient, and potency among the others varied by 1,000 percent.¹⁹ Similar results involving various brands of St. John's wort have also raised quality concerns.²⁰ In choosing a mass-produced herbal product,

consumers may want to consider opting for a brand manufactured by a pharmaceutical company, because these companies have strict production standards already in place for manufacturing pharmaceuticals. Another good choice is German products. Some herbs developed into a particular formulation, like the standardized, concentrated ginkgo or Remifemin® brand black cohosh for hot flashes, have been used in studies in Germany and are available in the United States.

CONCLUSION

Contemplating the safety and quality concerns of herbal products can trigger a headache! Take two aspirin and go to bed for 10 years. By that time, issues of efficacy, safety, and quality may be resolved, and we will all be more informed. Until then, physicians should discuss the merits and drawbacks of herbs with patients and provide them with information about the potential for drug and herb interactions. Simply admitting the limitations of our present knowledge about herbal products can help patients. Physicians who want to discuss herbal products with their patients can

CONTEMPLATING HERBS OR OTHER DIETARY SUPPLEMENTS?

Follow these five steps to ensure the safest path through the dietary supplement maze:

1. Read about the herb or other dietary supplement you are considering. Go to the library, bookstore, or consumer information center. Keep gathering and reading information until you understand both the pros and cons.
2. Discuss your choice or findings with your health care provider, especially if you have a chronic or serious condition with the potential for complications.
3. Keep a record of what you're trying to treat. Rate the symptom; for arthritis pain, for example, use a scale of 1 to 5 before you start a supplement, and then keep a record during therapy to chart any improvement.
4. Set a time limit for using the herb or other dietary supplement—this will depend on the condition and the supplement. Noticeable improvement could take from a few days with some herbs to up to six months with others. If you are uncertain, ask your health care provider.
5. Take only one supplement at a time. If you start two different therapies at the same time, you won't know which one was responsible for any improvement.

INFORMATION SOURCES ON HERBS AND DIETARY SUPPLEMENTS

NEWSLETTER

"Alternative Medicine Alert, A Clinician's Guide to Alternative Therapies." Published by American Health Consultants. Editor: John La Puma, M.D., F.A.C.P. This monthly publication is an objective source of news, research, and assessment about herbs, dietary supplements, and alternative techniques. \$199 per year. 800/688-2421.

BOOKS

• "The American Pharmaceutical Association Practical Guide to Natural Medicines." Peirce A. Morrow, 1999. Alphabetical listing of herbs and other dietary supplements, such as glucosamine, zinc, and acidophilus, with a rating system of effectiveness and safety based on scientific evidence.

Appropriate for consumers. ISBN 0-688-16151-0. Available at local bookstores, \$35.

• "Rational Phytotherapy: A Physician's Guide to Herbal Medicine," 3rd ed. Schulz V, Hansel R, Tyler VE. Springer, 1998. A practice-oriented introduction to phytotherapy. Available from the American Botanical Council, 512/926-4900, \$49.

• "American Herbal Products Association's Botanical Safety Handbook." McGuffin M, Hobbs C, Upton R, Goldberg A, eds. CRC Press, 1997. Safety data on more than 550 herbs, including contraindications, side effects, and special warnings. Each herb is classified as: 1. can be safely consumed when used appropriately; 2. for external use only; or 3. not to be used during pregnancy. Available

from CRC Press, 800/272-7737, \$39.

INTERNET

Camilla Cracchiolo, R.N., Web page: www.primenet.com/~camilla. Objective, referenced information on selected herbs.

American Botanical Council: www.herbalgram.org. Non-profit research and educational organization.

American Herbal Pharmacopoeia: www.herbal-ahp.org. Therapeutic monographs on herbs.

NIH Office of Dietary Supplements: odp.od.nih.gov/ods/question.html.

Quackwatch: www.quackwatch.com/. Guide to fraudulent herbal products.

U.S. Pharmacopoeia: www.usp.org Therapeutic monographs on herbs.

start with the five-step plan outlined on page 47, which encourages patients to think through their choices of herbal products. **MM**

Jodi Chaffin is the resource pharmacist on herbs and dietary supplements for HealthPartners. A graduate of the University of Minnesota College of Pharmacy, she has developed continuing medical education materials for physicians, nurses, and pharmacists on the use of herbal products. She also writes informational brochures on herbal medicines and teaches classes on herbs for patients.

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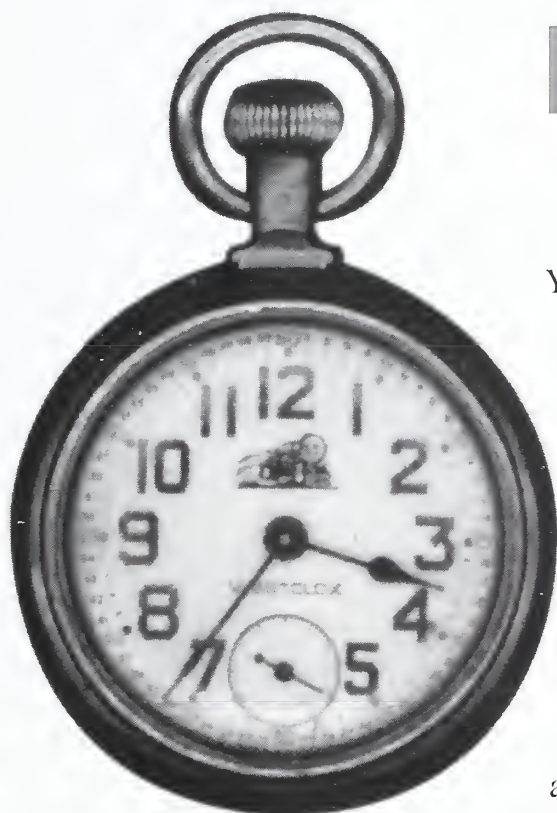
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Patient Demand for Integrative Medicine

Patients want a greater role in managing their own care.

By Christopher Foley, M.D.

Alternative medicine—interventions neither taught widely in medical schools nor generally available in U.S. hospitals—is a compelling movement in health care that continues to defy “best methods” incorporation by managed care systems. What works, what doesn’t, what can or cannot be used alongside conventional medicine, who pays, and other basic questions are not easily answered by health system executives or anyone else.

Integrative health is the combination of Western or conventional medical disciplines with those of various alternative and complementary therapies, a combination that forms a continuum of health and disease management tools within a framework of accepted professional standards. Questions as to what those standards are, who will determine them, and what should be covered under conventional insurance mechanisms loom. Indeed, why integrate these modalities at all? According to David Eisenberg’s often-cited review of alternative medicine,¹ this industry appears to be managing quite handsomely—with revenues of \$30 billion per year!¹⁻³ Why try to institutionalize it by bringing it into the realm of conventional medicine?

Survival may be one answer. It’s likely that future health care systems will need to offer alternative medicine to preserve their place in the market. Alvin Toffler’s think tank in Alexandria, Virginia, recently predicted that health care systems in 2010 will incorporate complementary and alternative approaches that have been shown to be cost-effective. According to Toffler, tomorrow’s health care systems will advertise how “holistic” they are, using report cards to measure their providers’ success in applying various complementary and alternative approaches to prevention and treatment.

Toffler’s group further predicts that conventional health care providers will also test and validate alternative approaches and conventional therapeutics more consistently. The involvement of more patients in testing new and old treatments will lead to a focus on effectiveness in specific subgroups of the population.⁴

Recently, a group of leaders in medicine, nursing, ethics, law, philosophy, and the health care industry from four countries was convened under a grant from the Robert Wood Johnson Foundation to establish a common set of ethical principles for health care. This group, the Tavistock Group (named after the square in London where they originally met), elaborated several universal ethical principles unifying the visions of the various professions and industries. One of these principles reads as follows:

“The responsibilities of the health care delivery system include the prevention of illness and the alleviation of disability. Biological, clinical, and social sciences have the potential to prevent illness as well as to cure it or alleviate suffering. The goal of research must therefore be to prevent illness and reduce disability so effectively that health care can increasingly shift its focus from curing or caring for disease to keeping people healthy.”⁵

Here, perhaps, is a clue to why our current system finds incorporating complementary and alternative approaches so difficult. Our current delivery system is focused on disease. Our tools for managing disease require proprietary products, control by physicians, and scientific validation of their efficacy. The pharmaceutical industry, diagnostic imaging and surgical instrument businesses, and traditional hospital consortia all benefit from the sale of these tools. As the cost of dispensing this type of care threatens to outstrip our ability to pay for it, physicians have been forced to become the “rationing agents” of this tool chest. Expanding our toolbox to include measures that provide greater patient autonomy and focus on managing function to avert disease is one of the charges of integrative health care. We may have to change the way we think about health care to add some new tools. For example, perhaps we would educate more patients more effectively if we saw them in groups instead of in typical one-on-one visits.

Admittedly, integrative health care lacks validating longitudinal studies. However, it’s clear that we can use such tools as lifestyle modification, nutrient enhance-

ment, and stress management to keep our aging population healthy longer. We must become coaches in helping patients manage their lifestyle and their demand for expensive, acute care. They are asking us to help them be less vulnerable to disease without the use of drugs and technical interventions.

Practice guidelines, another tool of modern, disease-oriented medicine, attempt to make the diagnosis and treatment of disease generic—one size fits all. Patients confronted with such an approach feel a loss of identity. The integrative approach allows physicians to consider each patient's unique combination of genetics, environment, nutrition, psychosocial stressors, and beliefs. It offers the holistic approach that our customers—our patients—are asking us to take in the prevention and treatment of their ailments.

Information technology, another widely used tool, promises smooth application of guidelines and highly specialized automation. But will physicians literally be "ATM'd" and their primary care duties replaced by computers? Integrative health care emphasizes the human over the machine. Our patients expect human interaction with their healers—and rightly so.

Where does this leave the contemporary physician? One need look no further than the trends that Eisenberg has aptly identified.² According to his survey, there is a rising tide of interest in integrative health care, and much of it is occurring without any increase in patient dissatisfaction with the primary physician.⁶ In other words, the primary physician is doing an excellent job, but patients are looking for something more.

What is left, then, is the essence of the healing relationship. This essence cannot be made generic, "pathwayed," or distilled in the interest of economy. The physician as steward, coach, or teacher, seeking dialogue, mutual learning, and trust, defines a new role other than that of the "parent" who always knows better. Rather than merely treating high blood pressure with a drug, an integrative physician will help the patient understand the many opportunities and tools available to modulate endothelial function, reduce oxidative stress, and manage the effects of aging on vascular health. Drugs and surgical interventions will always be part of disease management. But the contemporary physician-teacher will also explore customized diets, specific nutrient enhancements, mindfulness exercises, and other alternative approaches. As physicians, as patients, we are not passive victims of disease, but active participants in our own personal health and stewards of our gene expression. Ultimately, it's the patient who practices demand management in health care. Discovering the best tools for meeting patients' needs will require partnerships in the truest sense.

MM

As medical director of Infinite Health Healing Center and director of Integrative Health at HealthEast, internist Christopher Foley provides medical guidance for integrating complementary and conventional therapies.

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Legal Aspects of Alternative Medicine in Minnesota

Given patients' growing interest in alternative therapies, physicians need to become familiar with the liability issues associated with these practices.

Pamela H. Goldman, M.P.H., J.D.

Regardless of specialty, the odds are that a physician practicing in Minnesota has patients who are using some form of alternative medicine. Nationwide, use of alternative therapies increased from 34 percent of the population in 1990 to 42 percent in 1997, according to a study in the *Journal of the American Medical Association*.¹ Use of herbal remedies, massage, megavitamins, self-help groups, folk remedies, energy healing, and homeopathy had increased the most. Researchers found that 15 million adults, representing 18.4 percent of all prescription users, took prescription medications concurrently with herbal remedies and/or high-dose vitamins. The researchers also found that patients disclosed use of alternative therapies to a physician less than 40 percent of the time, and most alternative therapy is used without the supervision of an alternative practitioner.

While patients pay most of the cost of alternative therapies, insurance companies and managed care organizations are starting to cover the costs of some of these treatments. Under Minnesota law, an insurance policy that provides coverage for a service within the lawful scope of chiropractic practice must reimburse a licensed chiropractor the same as a licensed physician providing the service.² Some traditional clinics and managed care organizations now provide the services of alternative practitioners, such as chiropractors, massage therapists, and acupuncturists,

as well as herbal remedies, with costs paid by insurance or out-of-pocket.

Alternative therapies are not taught widely in medical schools, and most have not been scientifically studied. By definition, they are not part of the array of therapies accepted as standard medical treatment. For these reasons and others, most physicians have not advised patients on the use of alternative therapies, have not offered alternative therapies as part of their practice, and have not referred patients to alternative practitioners.

Many physicians may fear that by discussing alternative therapies with patients, they would encourage the use of methods that could be at best not helpful, and at worst, hazardous to the patient's life and health. Physicians may also be concerned that by making referrals to alternative practitioners, they will be open to liability for medical malpractice.

CASE 1

A 54-year-old woman with chronic hypertension is at a follow-up visit in her internist's office two months after starting a new antihypertensive medication. The physician reviews the patient's vital signs and inquires about any side effects that she may be experiencing. The patient states that she has been feeling fine, except for occasional hot flashes, which she attributes to menopause. She then asks the physician whether she should take an herbal remedy that she had read about in a magazine article as being

beneficial for easing symptoms of menopause.

RISK OF MEDICAL MALPRACTICE

Is there a risk of medical malpractice liability for advising this patient regarding the use of herbal remedies—or failing to do so? Physicians may be liable for medical malpractice when the care they provide does not conform to the “standard of care”—the care that would be provided by a reasonable physician with the same education and training. Usually, expert testimony by a physician of the same specialty is required to establish the standard of care in a situation where malpractice is alleged. Courts have held physicians prescribing alternative or nonstandard therapies to the same standard of care expected of physicians prescribing conventional therapies.³

Whether the type of therapy being offered is conventional or unconventional, physicians must possess the same basic scientific knowledge of the nature of disease and the disease process. That standard and other basic standards in areas such as record-keeping and informed patient consent do not vary based on treatment regimens.

Herbal remedies, or botanicals, have not been part of the standard array of therapies offered or recommended by conventional physicians. However, with the growing attention by the media and in the medical literature to the high use of alternative therapies, there may be a risk of

liability for negligence for failing to advise patients about these substances. Many people assume that herbal remedies are "natural," and therefore safe.⁴ Botanicals interact with prescription medications, can have harmful effects, and may be contraindicated for patients with some conditions.

The Dietary Supplement Health and Education Act of 1994 created a new product class—the dietary supplement—that is not subject to regulations applied to drugs.⁵ The Food and Drug Administration can only restrict the sale of an herbal product if well-documented health problems have been associated with it. Under this law, there is no assurance that the dose in an herbal product is the amount stated, or that the product even contains the active ingredient listed on the label.⁶ Moreover, dietary supplements can be sold without FDA review for safety or effectiveness. The FDA does not have a systematic process for scrutinizing dietary supplement companies, and has only five employees dedicated to overseeing dietary supplements.⁶

Physicians should routinely ask patients about their use of herbal remedies and high-dose vitamins, in addition to inquiring about the use of over-the-counter medications.¹ This is particularly relevant for patients who have chronic conditions and are taking prescription medications. The scientific literature on alternative therapies, including botanicals, is growing. The National Institutes of Health, through its National Center for Complementary and Alternative Medicine, is funding a variety of studies and maintains a database of citations on alternative medicine topics.⁷ Two recently published references, the "Physicians' Desk Reference for Herbal Medicines," produced by the publisher of the "Physician's Desk Reference," and an English-language edition of "The Complete German Commission E Monographs," are also available to help educate physicians, pharmacists, and others about the known uses, proper dosages, and safety precautions of more than 600 botanicals now sold in this country.

In Case 1, the physician could

have minimized the risk of liability for malpractice by asking whether the patient had already used any herbal preparations and by discussing the potential risks associated with that use. In addition, the physician could research the potential interactions and side effects of any herbal products the patient is taking and then inform the patient. Any discussion should be documented in the medical record.

INFORMED CONSENT

The basic premise of informed consent is that a patient has the right of self-determination and must be given the opportunity to consent to or refuse treatment. Under Minnesota law, the doctrine applies when the patient must either accept or reject a medical treatment that entails some risk to the patient. The doctrine also applies when the patient must choose between two or more medically accepted methods of treatment.⁸ The physician has a duty to disclose significant risks of death or serious harm and must also disclose risks that a skilled practitioner of good standing in the community would reveal. To the extent the physician is aware that a patient attaches a particular significance to risks not generally considered serious, the physician must also disclose those risks.⁹

Under Minnesota law, a physician has no duty to advise patients of the availability of treatments that could be offered in addition to treatments under the applicable standard of care. Furthermore, a physician has no duty to advise patients of the availability of nonstandard treatments. If a physician chooses to recommend or offer nonstandard treatments, the physician should disclose to the patient whether or not the alternative treatment has been scientifically tested.

In the case of treatments that have not been scientifically tested or shown to be both safe and effective, courts may deem the treatments "experimental" and require a heightened informed consent standard, even if the treatment is not the subject of a clinical trial.¹⁰ If a physician offers or advises a patient concerning a treatment that falls into this category, the physician should fully disclose the

extent to which the treatment has been scientifically tested and any known or potential side effects. The physician should also advise the patient that the treatment is considered experimental and that not all effects and side effects are known.

Informed consent should be documented in the medical record. Documentation should include a statement of risks and benefits of the treatment that were discussed, and that the patient was given the opportunity to ask questions and have them answered. In the case of treatments that are not scientifically proven to be safe and effective, documentation should include a statement that the patient was so informed.

DISCIPLINE BY THE BOARD OF MEDICAL PRACTICE

In addition to medical malpractice liability, physicians may face discipline by the Board of Medical Practice for care that does not meet accepted standards. Grounds for discipline include prescribing a drug or device for other than medically accepted therapeutic purposes or engaging in unprofessional conduct. Unprofessional conduct includes any departure from, or failure to conform to, the minimal standards of acceptable and prevailing medical practice; harm to a patient need not be established.¹¹ A physician may also be disciplined for dispensing for profit any drug or device, unless the physician's profit interest is disclosed to the patient in advance in writing.¹²

In Case 1, the physician is unlikely to be disciplined for advising the patient regarding the use of herbal products, so long as the advice is grounded in scientific knowledge. If the physician advises the patient to use an herbal product, the advice should be supported by scientific data, and informed consent should be documented in the medical record. The medical record should reflect that the standard of care has been met.

CASE 2

A 20-year-old cancer patient asks her oncologist if she can receive acupuncture treatments for the nausea and loss of appetite she is experiencing from her oral chemotherapy,

which she takes twice a day. She also asks the oncologist to recommend an acupuncturist to provide treatment.

MALPRACTICE LIABILITY FOR REFERRALS TO ALTERNATIVE PRACTITIONERS

Two issues are presented in this case: 1) Does the physician have liability simply for making a referral to an alternative practitioner? 2) Is the referring physician exposed to malpractice liability if negligent care is provided by the alternative practitioner?

1) The referral should be medically appropriate. Liability for malpractice due to referrals can be minimized by referring patients to practitioners who provide therapies that have been scientifically tested and found to be both safe and effective, and to which the patient has no medical contraindications. The referring physician should also determine whether a referral to another medical specialty would be more appropriate.

2) Generally, when a physician makes a referral to another physician and does not retain control over the care provided, the referring physician is not liable for malpractice of the second physician.¹³ However, if the referring physician has reason to believe that the second physician is, for example, unlicensed or incompetent, the referring physician could have liability for negligence. If the referring physician supervises the care given by the second physician, the supervisory relationship could result in liability for the second physician's negligence.

Physicians who refer patients to alternative practitioners should make sure that the referral is medically appropriate. A medically appropriate referral to a licensed and credentialed practitioner by a physician who is not supervising the subsequent treatment by that practitioner should not put the referring physician at risk of liability for any negligent treatment by the alternative provider. (Chiropractors and acupuncturists are licensed in Minnesota.)

If the patient is treated on an ongoing basis by both a physician and an alternative practitioner, the alternative practitioner could be

viewed as the physician's agent, which could result in joint liability for negligence of the alternative practitioner.

A study of claims information from the nation's leading indemnity insurers serving chiropractors, massage therapists, and acupuncturists found that from 1990 to 1996 the rate of claims against chiropractors was two to three per 100 policyholders, compared with six to 10 per 100 policyholders for physicians.¹⁴ For massage therapists, the rate of claims was .1 to .2 per 100 policyholders; the researchers were unable to obtain comprehensive data on claims for acupuncturists and other alternative medicine practitioners.

The researchers also found a lower frequency and lower severity of claims against alternative medicine practitioners compared with claims against physicians. The study attributed this difference to the previously published finding that rates of medical injury increase with invasiveness of therapy.¹⁵ Because alternative medicine treatments are largely noninvasive, fewer injuries result, and the

injuries that do occur may not be as severe. The fledgling state of medical malpractice law, claims consciousness outside conventional medicine, and the practitioner-patient relationship may also affect claims.

In case 2, the oncologist could take the following steps to minimize any risk of malpractice liability relating to a referral for acupuncture requested by the patient. First, the patient's current treatment regimen and the patient's response should be reviewed with the patient. The oncologist should ensure that the standard of care for nausea prevention and control is being met. Second, the oncologist should advise the patient whether use of acupuncture treatments for nausea control in cancer patients has been reported in the scientific literature to be safe and effective. If the oncologist does not have this information, the patient should be told. The oncologist should also consider whether the patient has any contraindications to acupuncture. The oncologist may want to explore with the patient the possibility of

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other alternative treatments, such as relaxation, biofeedback, or therapeutic massage. Finally, if the oncologist finds that acupuncture is scientifically supported, there are no contraindications, and a referral for acupuncture treatments is appropriate, the oncologist can minimize liability risk for referral by making the referral to a licensed practitioner of acupuncture. If a referral is made, the oncologist can minimize any risk of liability for malpractice committed by the acupuncturist by avoiding a supervisory or agency relationship with the acupuncturist.

CONCLUSION

The public is using a wide range of nonstandard therapies. Physicians should continue to use their scientific knowledge in counseling patients and choosing therapies. Legal liability risk for referrals to alternative practitioners should not be of great concern when referrals are medically appropriate and the practitioners are licensed and credentialed.

MM

Pamela Goldman is a health care attorney with the law offices of Gordon J. Apple, P.C., in St. Paul, Minnesota. She earned her undergraduate degree in nursing and Master of Public Health degree from the University of Minnesota. Ms. Goldman practiced nursing in hospital and community health settings before attending the University of Minnesota Law School.

This article is not legal advice and is intended as a general overview. For questions about how the legal principles, statutes, and cases discussed apply in your practice, please consult your lawyer.

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Your Herbal Medicine Library

Several recent references can help bring physicians up to speed on the herbs their patients may be using.

Reviewed by Gregory A. Plotnikoff, M.D., M.T.S.

Doctor, I'm using gotu kola, evening primrose oil, black cohosh, red clover, and ginseng. Any concerns?"

How do you respond? More importantly, how do you respond professionally?

For physicians needing a ready reference in the office, few resources have been available. In fact, until recently, the challenge has been to find any resources. Now the challenge is to find good resources.

The ideal text would provide comprehensive coverage of herbs and other dietary supplements, scientific citations on all claims, and information about drug interactions and potential toxicities. This text would not make premature or wishful conclusions but would acknowledge data limitations. The ideal reference book would focus on the results of randomized clinical trials. And, finally, this ideal book would fit in one's pocket and have an accessible, easily readable format.

Only one text fulfills these criteria. In my opinion, the finest text available is "The Professional's Handbook of Complementary and Alternative Therapies" by pharmacists Charles W. Fetrow and Juan R. Avila. This sturdy paperback weighs just a few ounces and measures a slim

4 1/2 x 8 1/2 inches, but it covers more than 300 herbs and other supplements in 762 easy-to-read pages. From aconite to chondroitin to kelp to yohimbe, botanicals and supplements are described and evaluated with a consistent focus on clinical relevance.

Topics covered in the description

graphics highlights key points and makes for easy reading.

Skeptics will appreciate this book, since randomized clinical trials on each herb are described and referenced. Appendices list potentially dangerous herbs, potential drug interactions, and monitoring guidelines. Other appendices cover health conditions, herbs promoted for their treatment, and pharmacologic and clinical evidence.

A better-known but less valuable reference is the "PDR for Herbal Medicines." To date, more than 80,000 copies of the herbal PDR have been sold, most likely due to the high demand for reliable information and the PDR name. Unlike the prescription medication PDR, the herbal PDR was originally written for a German scientific audience and later sold to an American publisher. Although the book covers hundreds of rarely used herbs, it does not address some widely used dietary supplements, such as chro-

mium. The result is an expensive text with limited validity for American physicians.

For example, the FDA deems the herb *Convallaria majalis*, lily of the valley, unsafe because of its potent and toxic cardioactive steroid glycosides. The herbal PDR fails to men-

Reference Books on Herbs and Dietary Supplements

- The Professional's Handbook of Complementary and Alternative Medicines. Charles W. Fetrow and Juan R. Avila. Springhouse Corp., 1999.
- PDR for Herbal Medicines. Medical Economics Company, 1999.
- The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicines. Mark Blumenthal, Senior Editor. The American Botanical Council, 1998.
- Herbal Remedies for Dummies. Christopher Hobbs. IDG Books Worldwide, Inc., 1998.
- Tyler's Honest Herbal, 4th ed. Steven Foster and Varro E. Tyler. The Hawthorn Herbal Press, 1998.

of each herb include sources, chemistry, actions, reported uses, dosage, adverse reactions, and interactions. The authors include special considerations and points of interest along with incisive analysis. Each section is logically organized and can be read in under a minute. The liberal use of

tion any such concerns but notes that the herb is indicated for "arrhythmias, cardiac insufficiency, and nervous heart complaints." The PDR notes that "older" studies demonstrate positive inotropic effects and cites scientific literature without providing titles. For dosing guidelines, the text cites German monographs unavailable in the United States. Additionally, the herbal PDR fails to reference important English articles of related interest. This book makes no contribution to clinical care in the United States.

In contrast, the recent translation and publication of the Commission E monographs do represent a significant contribution to clinical practice. This book presents an evaluation of 300 herbal medicines by the German government's Commission E, the counterpart to the FDA. Published between 1989 and 1994, these monographs represent the expert opinion of physicians and scientists who reviewed many forms of evidence, including historical use, case records from physician offices, and pharmacologic and clinical studies. Herbs were granted approval ratings for 150 indications.

This text is incredibly user-friendly. The language is crisp, the typeface is large, and topics are accessible by several means through excellent cross-referencing. The monographs are supplemented by excellent overviews of contemporary European and American herbal issues. Numerous indices—including indications, contraindications, side effects, interactions with conventional drugs, and duration of administration guidelines—add significant value for practitioners.

Although "The Complete German Commission E Monographs" is the best overall reference on herbalism, its lack of footnotes and scientific citations will disappoint skeptical physicians. The translators noted that Commission E did not cite references. The translators compensate by providing the most thorough and substantive introduction to the subject available anywhere.

"Herbal Remedies for Dummies" is an informative and interesting book for the general public. Written by an acupuncturist and fourth-generation herbalist, the content mostly focuses on growing, processing, and using herbs in the home. The book offers a very cursory guide to over 100 herbs, with no scientific citations. The symptom guide provides a holistic understanding and herbal recommendations, including formula recipes for common conditions, such as "garlic cough syrup." These summaries reflect the author's nonmedical education. He writes, for example, "Anemia is thought to be related to weak digestion. ... Take herbs to build the blood, such as dong quai root or nettle leaf. Also take digestive stimulants, such as gentian root and artichoke leaf." This book offers physicians insight into the herbs their patients may be using, but it does not provide sufficient information to justify the use of those herbs.

"Tyler's Honest Herbal," now in its fourth edition, is widely celebrated for its conservative, evidence-based approach to using herbs for health conditions. The initial lead author, Varro E. Tyler, Ph.D., is the Distinguished Professor Emeritus of Pharmacognosy at Purdue University and has written more than 300 scientific articles. The new lead author, Steven Foster, has 25 years of experience in herbs and herbalism and is the author of 10 books. The physician reader will appreciate their contributions.

Organized by their common names, 120 herbs are addressed in a concise, highly readable format. Citations are provided, but they are principally from secondary sources rather than medical journals. This book provides interesting historical information, describes common usage and dosing, identifies fictions, and criticizes promotional hype. "Self-administration in any form of inexact amounts of any drug as potent as Lobelia is inadvisable ... especially when one considers the availability of much safer and effective treatments. ... In short, the crude drug has been thoroughly discredi-

ed, and any use of it ... is definitely not recommended," the authors write.

Since 1993, all German medical students must demonstrate competency in phytotherapy on their national boards. In the United States, the public expects physicians to provide competent counseling in dietary supplements. With the publication of several new references, the capable and concerned physician need not be intimidated when the subject of uva ursi or kava kava comes up. Relying on these evidence-based texts, physicians can effectively counsel their patients on herbal medicines. **MM**

Gregory Plotnikoff is an assistant professor of Clinical Internal Medicine and Pediatrics at the University of Minnesota Academic Health Center and medical director of the university's Center for Spirituality and Healing.

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Provided through the MMA Committee on Accreditation and CME. For assistance with scheduling meetings or for information on future medical meetings and CME courses, please contact the MMA office: 3433 Broadway Street NE, Suite 300, Minneapolis, Minnesota 55413-1761; 612/378-1875. For a complete listing of our calendar, visit the MMA home page at www.mnmed.org. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

MAY 1999

May 4-7 **Sixth International Surgical Pathology Symposium** Mayo Medical Laboratories; Hotel Inter-Continental, Prague, Czech Republic. CONTACT: Julie McAdams, 200 First Street SW, Rochester, MN 55905; 507/284-8599.

May 7 **Pediatric Update** Dakota Heartland Health System; Ramada Plaza Suites, Fargo, ND. CONTACT: Michelle Anderson, 1720 University Drive S, Fargo, ND 58103; 701/280-4581.

May 21 **Poisonous Plants Symposium** Hennepin County Medical Center; Pillsbury Auditorium, HCMC, Minneapolis, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

JUNE 1999

June 16-18 **63rd Annual Advances in Breast, Endocrine, and Cancer Surgery Course** University of Minnesota Medical School, Department of Surgery; Willey Hall, University of Minnesota, Minneapolis, MN. CONTACT: Office of Continuing Medical Education, University of Minnesota, 107 Radisson Hotel Metrodome, 615 Washington Avenue SE, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636 or fax 612/626-7766.

June 18 **Current Topics in Brain Injury Rehabilitation** Mayo Continuing Nursing Education; Mayo Medical Center, Siebens Medical Education Building, Rochester, MN. CONTACT: Mayo Continuing Nursing Education, Eisenberg S-41, 200 First Street SW, Rochester, MN 55905; 800/545-0357.

June 23 **Infection Control Lecture** Hennepin County Medical Center; HCMC Pillsbury Auditorium, Minneapolis, MN. CONTACT: Continuing Medical Education, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415; 612/347-2075 or 888/263-4262.

JULY 1999

July 18-24 **Mayo Clinic Internal Medicine Certification and Recertification Board Review 1999** Mayo Foundation; Mayo Civic Center, Rochester, MN. CONTACT: Mayo

Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 28-31 **Mayo Interventional Cardiology Symposium** Mayo Foundation & Society for Cardiac Angiography and Interventions; Silverado Country Club & Resort, Napa Valley, CA. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

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*Turn to page 68 for our quarterly
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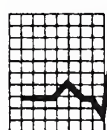
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Mountaineering

from page 68

"It was so serious," says Markman, "I thought he might die." Struggling with the limp climber, they made it through a two-foot-wide path of slippery slate overlooking a sheer drop-off. They finally arrived at the staging camp, but only with the help of two guides recruited from a Swedish group. Markman had given his stricken climbing partner a steroid for cerebral edema. By the time they reached 15,500 feet, the man began to regain awareness.

On the flight to Tanzania, Markman had lost all of his luggage except his medical bag. He had to borrow boots and clothes to make the climb. "I'm so happy Wendy and I packed all that medicine. If I hadn't brought the steroid, I really believe the guy would have died."

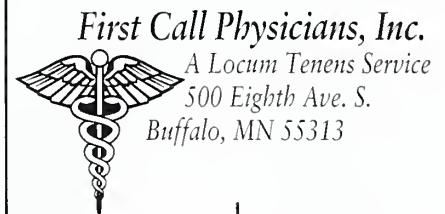
Not intending to be the "medical

director" of the climb, Markman tried to deflect attention from his being a doctor during the group's training. "I told them I was just your basic, friendly orthopedic surgeon," says Markman. "It turns out I was the most medically trained person on the trip. As a physician, I have some training in emergency medicine, but if somebody's brain shut down and he stopped breathing, there's nothing I could have done. I was pleased to have the skills to help out on the mountain and thrilled that the most gravely ill climber came out of it just fine."

WCCO will sponsor a mountaineering trek in Peru this summer to benefit the Ronald McDonald House, and a physician will be along to serve as a bona fide medical leader.

Would Markman do it again? "No, I've climbed enough mountains." **MM**

Howard Bell is a free-lance writer living in Onalaska, Wisconsin.



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Medicine for Mountaineering

Dr. Alan Markman's skill and his medical bag came in handy on what was supposed to be a recreational climb of Mount Kilimanjaro.

By Howard Bell

Alan Markman, M.D., didn't realize that people have died on Mount Kilimanjaro in Tanzania, and that nearly half who attempt the climb never reach the top. In fact, the 45-year-old orthopedic surgeon with the Minneapolis Sports Medicine Center and Orthopaedic Consultants, P.A., had never climbed a mountain in his life. But climbing Africa's highest peak would be an adventure. Besides, it would benefit the Minneapolis Ronald McDonald House, a place families can stay while their child undergoes cancer treatment at the University of Minnesota.

WCCO-TV news anchor and experienced climber Don Shelby was also among the 17 Minnesotans who climbed Kilimanjaro last August. Shelby served as a group leader along with Scott Backes, a world-class climber who represents North Face outdoor gear. "Those two did their best to prepare us mentally and physically, but I didn't have a clue how high 19,300 feet is," says Markman. "To experience it is very different from imagining it."

From the beginning, the mountain was not "fun," says Markman. "We enjoyed ourselves with caution." All the climbers were keenly aware that they could get acute altitude sickness—or worse, cerebral or pulmonary edema. To prevent altitude sickness, the climbers drank at least six liters of fluid each day and took the ophthalmic drug Diamox.

They climbed for six days and five nights—through banana and coffee plantations and a rain forest—marching through the cloud line and

emerging into a semiarid scrub and bare rock beneath a cloudless deep blue sky. On day four, they reached the staging camp at 15,500 feet, where they would prepare for their final ascent to the glacial-capped summit.

"You hear so much about Kilimanjaro, you get the feeling it's just a walk in the park," says Markman. "I was completely naive about the altitude problems we would encounter." The group's practice "climbs"—walking up and down the hills of Minnesota's Afton Alps Ski Area while wearing 35-pound vests for three hours every Saturday for three months—were not enough to prepare them. They quickly discovered that altitude sickness has little to do with physical fitness; every climber got hit with nausea, anxiety, headache, and sleeplessness. Luckily, Markman and his 43-year-old wife, Wendy, an R.N., brought along a bag of every potion and pill they thought they might need. "Every climber visited our tent at some point," Markman recalls.

On Kilimanjaro, it's summer every day and winter every night. Night temperatures near the top dropped to 15° F; daytime temperatures reached 40° F. At 17,000 feet, the climbers breathed air with half the oxygen content of air at sea level.



Alan and Wendy Markman (center) with David Luse, president of the Ronald McDonald House Board of Directors, and his wife, Julie, on Kilimanjaro's summit.

On day five, the group broke camp in the equatorial darkness at 12:30 a.m. Everyone was exhausted, but only one person could not make the final ascent. The others made it to the top by 9:30 a.m. Atop the broad glacial bowl covering Kilimanjaro's volcanic cone, they overlooked the vast patchwork of East African plain that stretched beyond the ring of clouds encircling the mountain below.

Even 45 minutes at the top was probably too long to linger. "We never got a group photo at the top," says Markman. "Everyone was in a state of absolute, total physical exhaustion." Two in the group had cerebral edema. One, still able to walk, was escorted by two of the group's best climbers down to the staging camp, where she began to recover.

Another was ataxic and could not walk or talk; Markman and four guides carried him down the mountain.

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Minnesota Medicine

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Beneficence

We like to get them. We're told we should like to give them. They mark life's milestones. They have the power to move kids to giggles and adults to tears. Gifts are a sustaining part of life. This



month's *Minnesota Medicine* looks at gifts that aren't pretty and wrapped, that are as much a part of death as life, and that most of us don't like to think about. The subject of organ and blood donation stirs up issues medical, ethical, and ethereal.

The act of giving lies at the root of most cultures. From Jacob and Esau to Abraham to Moses,

gifts are central to Old Testament tales. Jesus said it was better to give than receive, but Aristotle beat him to it four centuries earlier. Giving is a recurrent theme in literature. (If you're thinking of writing a novel, don't name it "The Gift"; the Hennepin County Libraries already list 15 books with that title.)

Giving supports the nonprofit cornerstones of our society. It is not accidental that many nonprofit organizations are called "foundations." Without the \$200 billion or so Americans give to charity each year, churches, orchestras, and soup kitchens would struggle or even fail.

Giving occupies a higher moral plane than most transactions. Most human interactions are contractual quid pro quo arrangements under which written, spoken, or understood rules of conduct govern what each person expects to give and get. Unlike other transactions, gift-giving implies sacrifice. Givers give up money, property, organs, blood, time, or even life.

Giving implies caring for the recipient. Many churches call their annual fund drives "stewardship," reinforcing the concept that gifts will take care of the church. Gifts nurture.

So why do people give? All giving is not selfless. For some, like Ted Turner, who

gave a cool billion to the United Nations, giving brings celebrity. For many, it brings appreciation. For most, it brings tax deductions. For all, it brings a bond to the recipient and a glow to the soul.

When blood and plasma donation became safe and feasible during World War II, giving became a medical procedure. After the first kidney was transplanted in 1954, the ante was raised for the donor; the hour lost and a day of fatigue required in donating plasma became a kidney lost and weeks of recovery from surgery. And when it became possible to transplant the hearts, livers, pancreases, and lungs of cadavers, donating got complicated by advance directives, definitions of brain death, and reflections on mortality.

Blood and organ donations are sine qua non gifts. Without the gift of organs, 11,990 kidney and 2,340 heart recipients last year would have lingered disabled or on dialysis, or they would have died. Without blood component therapy, modern medicine as we practice it would collapse. The "gift of life" is a PR cliché, but it is also an accurate portrayal of reality.

A transposition of that slogan forms the crux of the religion I know best. Life is a gift bestowed by an all-loving God. And although such an airy thought may seem far from the science of HLA typing and cyclosporine, I think it best explains why organ transplantation and blood donation have been possible and are more than medical procedures. As recipients of the ultimate gift, each of us has an immutable bond to those who need our blood and our organs. Because we all have received, we should all give.

.....
-Charles R. Meyer, M.D., Editor-in-Chief

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1. Source: Physician Drug and Diagnosis Audit (PDDA), November 1996–October 1997, Scott-Levin, a Division of Scott-Levin, PMSI, Inc.

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Patient Information about IMITREX Tablets and IMITREX Nasal Spray for migraine headaches.
Generic names: sumatriptan succinate, sumatriptan

Please read this summary of information about IMITREX before you talk to your doctor or start using IMITREX. No summary can take the place of a careful discussion between you and your doctor. Only your doctor has the medical training and the complete prescribing information necessary to determine if this medicine is right for you. Once you read this summary, you should discuss with your doctor whether IMITREX is appropriate treatment for you and ask any questions you may have.

WHAT IS IMITREX?

IMITREX is the brand name of sumatriptan, a drug intended to relieve your migraine headaches but not to prevent or reduce the number of migraine headaches you experience. IMITREX should be used only to treat an actual migraine attack. IMITREX can be obtained only with a doctor's prescription and should be used by adults only after discussing the choice with your doctor, taking into account your individual preferences and medical circumstances.

HOW DOES IMITREX WORK?

How IMITREX works is not completely understood. IMITREX is a 5-HT₁ agonist that seems to relieve migraine headaches by acting like a brain chemical called 5-hydroxytryptamine, causing some blood vessels in the head that are swollen during a migraine to constrict (that is, to become smaller), which helps relieve migraine headache.

IMPORTANT SAFETY CONSIDERATIONS

Although the vast majority of patients who have taken IMITREX have not experienced any significant side effects, some patients have experienced serious heart problems and, rarely, considering the extensiveness of IMITREX use worldwide, deaths have been reported. In all but a few instances, however, serious problems occurred in patients with known heart disease, and it was not clear whether IMITREX was a contributing factor in these deaths.

Serious events relating to the blood vessels in the head (e.g., brain hemorrhage, stroke) have been reported in patients who were taking IMITREX. Some of these have resulted in death; however, the relationship of IMITREX to these events is uncertain. In a number of these cases it appears possible that patients were not experiencing a migraine but rather an event due to blood vessel disease in the head. IMITREX was given in the incorrect belief that the person may have been suffering a migraine. Therefore, you should not take IMITREX if the headache you are experiencing is different from your usual migraine attacks. People who suffer from migraines may be at increased risk of certain blood vessel events in the brain (e.g., hemorrhage, stroke, or transient ischemic attack).

Ask your doctor about these and additional safety considerations.

WHO SHOULD NOT TAKE IMITREX?

Some types of migraine headaches should not be treated with IMITREX, and some patients should not take IMITREX because of an increased risk of serious side effects.

■ If you have had a heart attack, stroke, transient ischemic attacks, peripheral vascular disease (including ischemic bowel disease or Raynaud's syndrome), or any sort of heart disease or symptoms that are associated with constriction of blood vessels, such as ischemic heart disease, angina, or coronary artery vasospasm, you should not use IMITREX.

■ If you have uncontrolled high blood pressure, you should not use IMITREX.

■ If you are taking certain drugs for depression, talk with your doctor. IMITREX should not be used if you take or have taken within the last 2 weeks, monoamine oxidase inhibitors (MAOIs).

■ Your doctor will discuss with you the type of migraine headaches you have. If you have hemiplegic or basilar migraine, you should not take IMITREX. IMITREX should be used only in patients who have been diagnosed by a physician as having migraine with or without aura.

■ Tell your doctor about any other medications you are taking. If you are currently taking any migraine medications that include ergot alkaloids, such as methysergide or dihydroergotamine, or other 5-HT₁ agonists, do not take IMITREX within 24 hours of taking these medications.

■ Do not take IMITREX if you are allergic to sumatriptan or any of the ingredients in IMITREX.

WHAT MEDICAL PROBLEMS OR CONDITIONS SHOULD I DISCUSS WITH MY DOCTOR?

■ If you have risk factors for heart problems, you should tell your doctor. Your doctor should examine you for heart disease to see whether IMITREX is appropriate for you. Risk factors include high blood pressure, high cholesterol, obesity, diabetes, and smoking. Other patients with risk factors for heart disease are women who are past menopause (whether natural menopause or menopause resulting from surgery), men over 40 years old, or patients with a family history of heart disease. If you have risk factors and your evaluation for heart disease is satisfactory, your doctor may ask you to take the first dose of IMITREX in the doctor's office.

■ Tell your doctor if you have chest pains, shortness of breath, or irregular heart beats.

■ Tell your doctor if you are taking selective serotonin reuptake inhibitors (SSRIs).

■ Tell your doctor if you have a history of epilepsy or seizures.

■ Tell your doctor if you have liver or kidney problems.

■ Tell your doctor if you have ever had to stop taking any medication because of an allergy or other problems.

USE OF IMITREX DURING PREGNANCY AND BREAST-FEEDING

Do not take IMITREX if you are pregnant, think you may be pregnant, are trying to become pregnant, are not using adequate birth control methods, or are breast-feeding, unless you have discussed this with your doctor.

HOW TO USE IMITREX TABLETS OR NASAL SPRAY

Tablets: For adults, the usual dose is a single tablet taken whole with fluids. A second tablet may be taken if your symptoms of migraine come back or if you have partial response to the first dose, but no sooner than 2 hours after taking the first tablet. For a given attack, if you have no response to the first tablet, do not take a second tablet without first consulting with your doctor. Do not take more than a total of 200 mg of IMITREX Tablets in any 24-hour period.

Nasal Spray: For adults, the usual dose is a single spray administered into one nostril. If your headache comes back, a second nasal spray may be administered anytime 2 hours after administering the first spray. For a given attack, if you have no response to the first nasal spray, do not take a second nasal spray without first consulting your doctor. Do not administer more than a total of 40 mg of IMITREX Nasal Spray in any 24-hour period. The effects of long-term repeated use of IMITREX Nasal Spray on the surface of the nose and throat have not been specifically studied.

The safety of treating an average of more than four headaches in a 30-day period has not been established.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF USING IMITREX?

Do not rely on this summary alone for information about side effects. Your doctor can discuss with you a more complete list of side effects that may be relevant to you.

The most frequently seen side effects are tingling and warm/cold sensations with IMITREX Tablets and bad/unusual taste with IMITREX Nasal Spray.

■ Some patients feel pain or tightness in the chest or throat when using IMITREX. If this happens to you, discuss it with your doctor before using any more IMITREX. If the pain is severe or does not go away, call your doctor immediately.

■ If you have sudden or severe abdominal pain after taking IMITREX, call your doctor immediately.

■ Shortness of breath, wheeziness, heart throbbing, swelling of the eyelids, face, or lips; or a skin rash, skin lumps, or hives happen rarely, but if they happen to you, tell your doctor immediately. Do not take any more IMITREX unless your doctor tells you to.

■ Some patients have feelings of tingling, heat, flushing (redness of the face lasting a short time), heaviness, or a feeling of pressure after taking IMITREX. A few patients may feel drowsy, dizzy, tired, sick, or experience nasal irritation (Nasal Spray only). Tell your doctor about these effects at your next visit.

■ If you feel unwell in any other way or have any problem that you do not understand after taking IMITREX, tell your doctor immediately.

WHAT SHOULD I DO IF I TAKE AN OVERDOSE?

If you have taken more medication than you have been told, contact either your doctor, a hospital emergency department, or the nearest poison control center immediately.

HOW SHOULD I STORE IMITREX?

Be sure to keep your medicine in an area that cannot be reached by children. It may be harmful to children.

IMITREX Tablets and IMITREX Nasal Spray should be stored at room temperature and do not require refrigeration. Do not store above 86° F (30° C) or below 36° F (2° C). Store away from heat and light. If your medication has expired (the expiration date is printed on the label) throw it away as instructed. If your doctor decides to stop your treatment with IMITREX, do not save any leftover medication unless your doctor tells you to do so. Throw it away as instructed.

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Banking *for* Tomorrow



PHOTOGRAPH BY JOHN NOLTNER

*Jed Gorlin, M.D.,
medical director of
Memorial Blood
Centers of
Minnesota, says
yesterday's service
isn't good enough
in his
business.*

The pace is fast and the stakes high for Jed Gorlin, a local commodities broker of sorts. As medical director of Memorial Blood Centers of Minnesota (MBCM), Gorlin deals in blood, and that means handling a variety of concerns, both medical and administrative, including blood safety, costs, and donor recruitment. "The most important thing," Gorlin says, "is helping to set policies and procedures that ensure the optimal safety and efficacy of the stuff we collect, both for the donor and for the recipient."

Gorlin hasn't always worked on the administrative side of medicine, but he has always been intrigued with blood. A graduate of Stanford and Yale, he completed an internship and

By Jan Shaw-Flamm

residency in pediatrics at Boston Children's Hospital, then went on to fellowships in pediatric hematology/oncology there and pediatric research at Harvard. "Pediatric oncology," says Gorlin, "is particularly rewarding in that the kinds of cancers that many kids get are often some of the more treatable cancers, where your intervention really, truly makes a difference with long-term benefit; i.e., they're fixed."

Yet, after almost 10 years on staff in pediatric hematology/oncology at Boston Children's, Gorlin turned to administration, becoming associate director in transfusion medicine, then director of the blood bank there. Why the shift?

"Ironical as it sounds," says Gorlin, "a switch from pediatric oncology to transfusion medicine was at the time a switch into more patient care, not less. Because the reality of academics is that one supports oneself on research grant dollars, of which mine were entirely in basic science areas." He says working at the blood bank gave him a secure salary as well as the opportunity to serve patients.

Still, he admits to a few pangs over his increasingly administrative role. "I have mixed feelings," Gorlin says. "On one hand, having three young kids, it's real nice to be able to spend nights and weekends with them, and so, for the time being, that has many positive aspects. I do miss some of the clinical excitement and drama involved in real patient care."

The opportunity to join MBCM as medical director gave Gorlin the chance to return to his Minnesota roots. He and his wife, Jocelyn Bessette-Gorlin, a pediatric nurse practitioner, were pleased that the move would bring their three daughters, 4-year-old twins and their 10-year-old sister, closer to their grandparents. Gorlin's father, Robert Gorlin, D.D.S., whom the son calls "the real Dr. Gorlin," is Regents professor emeritus in oral pathology at the University of Minnesota.

Pioneering Work

Gorlin has big shoes to fill outside his family, too. His predecessor at MBCM was Herbert Polesky, M.D., who officially retired after 34 years at the blood bank but remains active in the organization. Because of Polesky's pioneering work in paternity testing, MBCM became known for genetic research, a factor in its selection as one of 16 national sites for nucleic acid testing (NAT) for hepatitis C and HIV. Testing began in April.

"We will be using an RNA test for the viruses that is much more sensitive than the tests we currently have," says Gorlin. "I'm not sure how much more safety it's going to add for HIV risk, which is already approaching a one in a million risk. ... What it will do is to make transfusion-associated hepatitis as vanishingly rare as transfusion-associated AIDS."

Fiscal Realities

At MBCM, blood products range in price from \$15 to hundreds of dollars, depending on what has to be done to prepare the blood for use. Blood that requires radiation and filtering costs more than liquid-recovered plasma, for example. Although donated blood is technically free, client hospitals pay for the collection, testing, handling, storage, processing, and shipping. NAT testing is estimated to increase the cost of blood by \$5 to \$7 per unit, illustrating one of Gorlin's great challenges: "reconciling fiscal realities with all the different things that *could* be done."

Another example of the conundrum of safety and efficacy vs. cost is leukoreduction, the process of removing white cells from blood. "You can't be against leukoreduction on a scientific basis," says Gorlin. "It helps decrease transfusion reactions if nothing else, but adds \$25 to \$30 to each unit." Gorlin says leukoreduction is routinely done for most hematology/oncology patients who have been chronically transfused, and for all patients at Children's Hospitals and Clinics. "You can justify it in those limited groups," he says. "Can you justify it economically for everybody else?"

Gorlin adds, "These aren't decisions for me to make, but they are for me to share with the hospitals, helping them to decide on practices and policies, to see that hospitals are taking advantage of new technologies in a fiscally prudent fashion."

Recruiting Donors

The obligation to recipients is critical, of course, but taking care of donors is likewise important. Some tests of donor blood turn out to be positive for abnormalities that may have medical significance. MBCM is restructuring the donor notification department so that it can more efficiently notify donors of medical conditions that come to light when their blood is tested.

MBCM is committed to using 100 percent volunteer donors because community volunteers have proven to be the safest source for blood. But recruitment presents a greater challenge than ever. The number of people coming forward to donate has dwindled while the need for blood has increased. When the Minneap-

"The most important thing is helping to set policies and procedures that ensure the optimal safety and efficacy of the stuff we collect, both for the donor and for the recipient."

olis War Memorial Blood Bank, now MBCM, was established in 1948 as a living memorial to those who gave their lives in World War II, blood donation had broad-based community support. But those who remember World War II and regard donating as a civic duty are aging, and younger people are not taking up the cause in similar numbers. There are signs of improvement. In the last fiscal year, MBCM collected 83,817 units of blood at its five donor sites and bloodmobile, an increase of about 2,000 units, after a recent recruitment effort. Still, says MBCM spokesperson Scott Caswell, "We're never happy with the amount." Lately, there have been more donors than staff members to draw their blood, he says.

Gorlin agrees that a shortage of staff has limited MBCM's growth. But he says collections have increased recently, in part because of a recruitment drive to introduce high school students to this altruistic habit. Other groups are being targeted as well, he says. "We are reaching out to groups previously underrepresented in the donor base, such as African Americans." The blood bank also has tried to make donating more convenient by adding more permanent sites. Smiling, Gorlin mentions one other incentive: "Our home-baked-style cookies are particularly good."

Increasing the number of African American donors is a particularly important challenge because of the needs of the estimated one in 400 African American children who have sickle cell anemia. "We have children in Children's Hospital who have chronic transfusion requirements," Gorlin says. "[Some of

them] form antibodies and become very hard to match the blood for. In order to provide antigen-matched blood beyond the usual things we match blood for, it's nice to have African American donors." Gorlin has garnered some support from the corporate sector and elsewhere. "We've been working with General Mills,

the Minnesota Twins, and Children's Hospitals and Clinics ... whose cancer research fund helps to support the printing of [recruiting] pamphlets."

MBCM: Not Yet a Household Word

Although MBCM has about 250 employees and annual revenue of about \$14 million, to many people "blood bank" still means the American Red Cross. The local ARC draws roughly three times as many units of blood per year as MBCM and serves 125 hospitals, compared with MBCM's 25.

As an independent blood center, MBCM may not have some of the economies of scale of a nationwide organization such as the Red Cross, Gorlin says. However, he feels there are tradeoffs in greater flexibility and community loyalty. Because control is local, Gorlin argues, MBCM can respond more quickly to the community, creating "novel, boutique programs," such as the sickle cell donor program for children, as needed. Perhaps

MBCM engenders more loyalty because it grew out of the same community it continues to serve, suggests Gorlin. "There's a real recognition of the importance of not just giving yesterday's service but advancing transfusion medicine into tomorrow." MM

Jan Shaw-Flamm is a freelance writer in St. Paul.

Hospitals Served by MBCM

Abbott-Northwestern Hospital, Minneapolis
Children's Hospital & Clinics, Minneapolis
Community Memorial Hospital, Cloquet
Cook Community Hospital, Cook
Cook County North Shore Hospital Blood Bank, Grand Marais
Deer River Community Hospital, Deer River
Ely Bloomenson Community Hospital & Nursing Home, Ely
Fairview Southdale Hospital, Minneapolis
Falls Memorial Hospital, International Falls
Hennepin County Medical Center, Minneapolis
Itasca Medical Center, Grand Rapids
Lake View Memorial Hospital, Two Harbors
Mercy Hospital, Coon Rapids
Mercy Hospital & Health Care, Moose Lake
Methodist Hospital, Minneapolis
Miller Dwan Medical Center, Duluth
North Memorial Health Care, Minneapolis
Northern Itasca Health Care Center Blood Bank, Bigfork
Pine Medical Center, Sandstone
St. Luke's Hospital & Trauma Center, Duluth
St. Mary's Duluth Clinic, Duluth
St. Mary's Hospital of Superior, Superior, Wisconsin
Unity Medical Center, Fridley
White Community Hospital, Aurora

MBCM Donor Sites

Arrowhead Regional Blood Center, Duluth
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Dr. Who?



ILLUSTRATION BY SUSAN LEVAN/ARTVILLE

The personal connections
between doctor and patient
add a human dimension
to the healing relationship.

I don't know what made me glance up and notice the man seated across from me in the waiting room, wan and shivering slightly in his hospital bathrobe and paper slippers. I could have pretended I didn't see him, but instead I waited till he looked up. When I caught his eye he grinned a little sheepishly. "OK," I said, "you know why I'm here. But why are you here?"

By Elizabeth Bryan

It was none of my business, of course. I don't think people should ask those they hardly know such questions, especially their surgeons.

Evan J.* is in his mid- to late 30s, Harvard-educated, tall and blond with the face of a teenager and a disarming smile. I had been referred to him for colorectal surgery and needed the usual round of pre-operative procedures. I certainly didn't expect to encounter Evan that day as I waited in the small lounge furnished with torn green chairs, the TV blaring "Wheel of Fortune," a scene all too familiar to me. I dreaded the upcoming barium preps, the singularly nasty probes, and the ice-cold x-ray table. I barely noticed the other patients, wrapped as I was in my own particular misery and hoping to hold it all in before I needed to use the bathroom again.

But for some reason I noticed Evan. His smile invited my nosiness. I went over to sit down beside him and he told me about the details of his recent swallowing problem and his upcoming endoscopy.

"Emma wouldn't let it go," he said. "You know how she is."

I laughed. Emma S. was my gastroenterologist too, but I didn't realize until today that she was treating Evan. If Emma told you to have a test, you had the test. She was smart and firm and you had to trust her.

"Are you scared?" I asked.

"I guess not scared exactly," Evan said. "But I have a good friend, a surgeon, who's dying of esophageal cancer. Ned K. He had to retire early."

That gave me a jolt. Ned K. was my surgeon a few years back and I'd wondered why he had stopped practicing medicine so young.

"Evan," I asked, "are you worrying that that's what you have?"

"No." Evan smiled a little nervously. "I'm just doing this as a precaution. Our family's going skiing and I want all this to be behind us." We chatted briefly about Minnesota winter resorts.

Then Evan asked, almost as an afterthought, how I was feeling. "That stuff you have to drink really is bad," he said. "I guess I never realized that until I had to swallow it myself this morning." I suspect Evan will be a bit more empathetic now when he prescribes Fleet Phosphate Soda or Go Lytely.

Soon Evan was called in for his procedure. I asked him to promise to tell me if he learned any results. Before long, he strode into the x-ray lab where I was stretched out on the steel table. "All clear." Grinning broadly, he stuck two thumbs in the air. "Not even a polyp." Then, still in his bathrobe, Evan resumed the role of surgeon and ordered the technologist to take good care of me, and reminded me he'd see me in surgery the next week.

"Is he related to you?" the technologist asked after Evan left.

"No," I said. "We're just sort of buddies."

That chance encounter happened more than a year ago. Yesterday I saw my surgeon again. This time I was a patient in his office.

"I've been thinking a lot about how much power I have," Evan grinned across his desk. "It's pretty amazing, don't you think? I tell patients what to do

and they do it."

"Is that what you want?" I asked.

"That's what you need to get things done," Evan answered.

Evan told me there isn't a lot of banter "except with you. You I talk with. We sit and discuss the ins and outs."

It seems Evan and I have an unusually informal and pleasant relationship for a patient and her surgeon.

Doctor-Patient Relationships Shouldn't Be One-Way

How often do physicians and their patients happen to wait together—as patients—in the same room for a medical procedure? Our encounter was a chance incident, but for Evan and me, it was an opportunity to experience each other as equals.

Evan seemed surprised that I was genuinely worried about his test results, and it occurred to me that it might be rare for patients to express concern for their doctors. Maybe doctors aren't aware that their patients care about them. But most of us do care about them. And so we should.

So often, doctors know all sorts of private information about a patient, while the patient knows almost nothing about the doctor. The tacit agreement is that the doctor will make or keep the patient healthy and the patient will pay for this service. It works like

"OK," I said,
"you know why I'm here.
But why
are you here?"

a car tune-up—all business—and perhaps for some patients and doctors this method is satisfactory. But for me and for many other patients like me and for the doctors I have so carefully chosen, it's not enough, not with the realities of illness and pain and death. I have shared unimaginably private moments with my cherished doctors, and our connections can no longer be confined within the narrow parameters of fees paid for services rendered.

I have Crohn's disease and a few other chronic medical problems that interfere too often with my personal life and with my work on a research project in the University of Minnesota Department of Psychology. When you have Crohn's, there is little about you that remains private. At some time, every orifice has been poked and prodded, every piece of you has probably spilled out somewhere, often somewhere embarrassingly public. For me, retaining dignity becomes less important than surviving these incidents with humor. Otherwise, how could I have faced the world after a mega-accident in the Mall of America, where shoppers and passersby could detect my odoriferous presence from several feet away until I finally got out of there, sopping wet and crushingly mortified?

For a long time I was reticent with doctors, and for good reason. But that is not this story. This story is about my current relationships with three physicians who help keep me on my feet: Lily C., the internist who directs my care, Emma S., my gastroenterologist, and now Evan J., my surgeon.

The Doctors I Depend On

In many ways, Lily knows more about me than my family does. I trust her enough so that if I'm feeling rotten or sad, I say so. And Lily tells me truths about my health. If I don't want to hear what she's telling me, that's my choice. But she always tells these truths to keep things square between us. She is also willing to admit when she doesn't know another solution for what ails me. Then she steers me toward that specialist with whom she believes I can develop the best rapport.

If I haven't seen Lily for a while, she rarely lets

more than a week go by without calling to see how I am. Nor am I the only patient Lily calls. I want to be able to reciprocate that concern. I want her to know it's OK to tell me when she's tired.

I once discovered by chance that Lily, who has two small children, had been up all night in one hospital with her daughter before she came to tend to me at 7 a.m. in another hospital. But she herself never mentioned this, and only after she examined me, and I asked, did she disclose the worrisome circumstances.

One day not long ago I had an appointment with Emma S., the gastroenterologist to whom Lily had referred me. Emma no longer accepts new patients, so I feel especially fortunate. She makes me laugh more than any doctor I've ever known. She leads a rich full life, travels all over the world, and owns a small boutique filled with exquisite lace and linens and porcelain that reflect her artist's eye.

Poking and prodding at my stomach, Emma watched my face during a recent office visit. "Love your slacks," she said, then laughed. "Uh-oh, I wasn't supposed to tell you that." Physicians are directed not to make personal comments, not even compliments, to their patients.

"But we patients already feel like pieces of meat in doctors' offices," I protested. "What gets us through are those little reminders that you see us as people."

Emma agreed. But she must be careful for her own protection (and because of that unspoken word: *litigation*). I was glad Emma said she liked my slacks, particularly when her next words were that I would need surgery again. The personal chitchat helped cushion the blow.

And Emma cushions in other ways, too: I have looked up to see her in the doorway at 10 p.m. when all the hospital rooms were dark except mine. Once I saw her writing notes at a consultation table at 4 a.m. These are a crazy lady's hours and I knew Emma was dead on her feet. Yet she sat down beside my bed—as if she had all the time in the world—to tell me about her romantic dinner with her husband. She knows I love to hear this kind of story now that I have lost my own husband.

DR. WHO? continued on page 58

"But we patients already
feel like pieces of
meat in doctors' offices,"
I protested. "What
gets us through
are those little reminders
that you see us as people."



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Banking on Blood

Blood centers in Minnesota and across the country are facing the challenges of decreasing donations and increasing competition.

by Jodi Ohlsen Read

Blood. It is not your typical therapeutic agent. Blood seems almost magical. It has symbolized strength, knowledge, insight, and personal connection in religious and cultural ceremonies throughout history. Not surprisingly, people often have strong feelings about blood, their own and others'.

Perhaps it is this emotional connection to blood that spurs blood donors to give of themselves, literally, so that others may live. In Minnesota, altruism through blood donations continues to thrive. Minnesotans are generous, says Jed Gorlin, M.D., medical director of Memorial Blood Centers of Minnesota (see related profile, page 6). "They give more and give more often. It is part of the culture here to help each other." Nationally, less than 5 percent of the population regularly donates blood. The Minnesota donor population is closer to 6 or 7 percent, Gorlin notes.

But are they donating enough? The media have repeatedly declared critical national blood shortages. And shifting demographics as baby boomers age could increase the demand. Yet, despite concerns about a potential rise in demand and a decline in the number of donors, Minnesota's blood supply appears to be stable. (The word *blood*, as used in this article, refers to whole blood and its components unless otherwise noted.)

"The Upper Midwest is one of the parts of the United States that collects more blood than is needed locally," says J. Jeffrey McCullough, M.D., a leader in transfusion medicine and director of the University of Minnesota Molecular and Cellular Therapeutics Center. "This means that there is a cushion of blood

for local needs. It also means that blood can be shipped to other areas in need."

Nationally, it is a different picture. Whole blood collections decreased by 6 percent between 1994 and 1997, according to a survey by the National Blood Data Resource Center (NBDRC), a not-for-profit corporation in Bethesda, Maryland. The 1998 Nationwide Blood Collection and Utilization Survey, completed by nearly 2,400 hospitals and blood centers, showed that 12.6 million whole blood units were collected in 1997—700,000 units fewer than reported for 1994.

Autologous donations—giving blood for one's own use—have also decreased, according to the NBDRC survey. Self-directed donations peaked at 8 percent of whole blood collections in 1992 and have decreased by 3 percent since 1994. (This may be due to increased confidence in the safety of transfused blood and more appropriate counseling of preoperative patients; in most cases, autologous donation is unnecessary.)

Local collections have not dropped as significantly. In fact, says Jonathan Siess, public relations manager for the American Red Cross North Central Blood Services in St. Paul, the agency has seen a nearly 30 percent increase in the last few years, following expanded efforts in donor recruitment.

Supply and Demand

Fluctuations in blood supply and demand are normal, and often occur seasonally. Slippery winter roads can cause more accidents, for example, while warm summer days might bring boating mishaps, raising the demand. And donations tend to decline during holidays. "We see a tremendous amount of variation, month to month, week to week," says Sue Ebert,

transfusion services supervisor for Hennepin County Medical Center. "Yet for the year, fluctuation is small." Hospitals, as the major purchasers of blood components, keep careful records and rely on historical usage patterns to estimate need.

"We know on a given day roughly what our blood needs have been and what they will be. And, on a daily basis—not a month ahead—we examine the inventory and adjust our need," says S. Breannan Moore, M.D., chair of the Division of Transfusion Medicine at



The blood collection process begins with the donor, who gives a pint of blood. ...

Mayo Clinic. "We try to bolster our supply to allow for ups and downs, to prepare for crisis situations."

Unlike most other medical centers in Minnesota, Mayo Clinic provides much of its own blood supply. A blood collection center as well as a hospital, Mayo supplies more than 70 percent of its needed red cells and close to 95 percent of other components. Almost half of Mayo's blood donors are Mayo employees.

To supplement its blood supply, Mayo turns to the St. Paul Red Cross. "Because we are a huge medical center in a small town, there is extraordinary need," Moore says. "We simply cannot meet all of our needs, even though our community donation rate is around 16 percent." He praises the Red Cross' service. "They are willing to go the extra mile to help our patients. For example, a St. Peter tornado patient used over 400 units of blood and survived. Red Cross came out like gangbusters to help us restore our supply."

As the largest blood provider in Minnesota, North Central Blood Services of the American Red Cross in St. Paul contracts with more than 100 hospitals throughout the state and also distributes blood components nationally. Established in 1948, North Central Blood Services is a leading participant in the Red Cross' National Inventory Management System, a central distribution hub in St. Louis that sends blood to hospitals nationwide when supplies are low. Nationally, Red Cross operates eight blood-testing laboratories, participates in transfusion medicine research, and provides clinical transfusion services.

The other main player in local blood services is Memorial Blood



The blood is tested for a variety of diseases ...

Centers of Minnesota, an independent, locally operated community blood center. Established in 1948, Memorial Blood Centers supplies blood and blood components to 25 hospitals in Hennepin and Anoka counties, Duluth-Superior, and the Arrowhead region, and to other hospitals in the Midwest. "As a blood center, we do more than collect, process, and distribute blood," says Scott Caswell, director of public affairs. "We help [hospitals] manage inventories, educate, research, and solve many related challenges." Memorial Blood Centers provides a variety of services in other areas, including parentage, virology, and transfusion medicine.

Competitive Climate

Representatives of blood centers are quick to point out how well their center serves its customers and community, a crucial factor in this new era of competition. In the past, Minnesota blood centers have worked well together, albeit carefully. "We have all three models here [hospital-based, independent, and national]. They all work very well for themselves, but they also get along pretty well," says McCullough. "So far, we've been fortunate in Minnesota, because there really hasn't been much competition. My guess is those days are about over. I think [competition] is destructive, counterproductive, and you get less blood out of a community—that is a terrible thing, and I hate to see it start here."

Yet the competition appears to be increasing. Merging and growing hospital systems must streamline services, a task that can force a choice between two blood centers. Fairview Health Services, for example, appointed Rick Panning, administrative director of laboratory services, to help integrate blood services across the system. "One of my first projects was to select one provider for Fairview-University

Hospitals," says Panning. "With Riverside using Memorial and the university using Red Cross, we needed to choose ... one provider. It was not an easy decision. We considered availability of product, cost, and other services, such as education and utilization review." Fairview-University eventually decided to go with Red Cross.

Because of changes in the health care system and an increased focus on cost containment, blood centers are having to change the way they do business in order to remain competitive. "Things have changed dramatically," says Robert Bowman, M.D., chief executive of North Central Blood Services and assistant professor in the Department of Laboratory Medicine and Pathology at the University of Minnesota. "There is a huge emphasis on cost reduction. ... But [competition] has helped us focus on hospitals as customers and awakened us to seeing our donors as stakeholders. As a result, our service is better and we are more cost-effective."

Still, there is a darker side of competition that makes many people wary. "Some competition is good. It inspires us to efficiency and quality. Yet to have two centers competing for donors can be mutually destructive," warns Mayo Clinic's Moore. Intense competition has led to some problems in other areas of the country. Nationally, the topic is of such concern that

major blood banking organizations are addressing it formally.

One way they are doing so is through the Harvard Blood Forum, a panel of leaders from the blood banking community. Facilitated by Leonard Marcus, Ph.D., director of the Program for Health Care Negotiation and Conflict Resolution at the Harvard School of Public Health, the forum includes the American Association of Blood Banks, America's Blood Centers, the American Red Cross, and the American Blood Resources Association. The forum sponsored two major initiatives this spring—development of cooperative efforts to increase blood donations and a conference to examine the National Blood Policy, a plan established by the Department of Health, Education, and Welfare in 1974 to develop a safe, fast, and effective nationwide blood collection and distribution system.

Bowman, who represents the Red Cross in the Forum's working group on blood donations, notes, "Blood banking needs to become competitive in a mature fashion. We can compete in ethical and appropriate ways. We should not do anything that negatively affects people's willingness to donate blood."

Despite the shift toward more competition, there is still a strong consensus that providing a safe

including platelets, red cells, and plasma. ...



and adequate blood supply should prevail over all other motivations. "The blood banking community is very strong here, with many good people. Everyone has the best interest of the donors and recipients at heart," says Sue Ebert, HCMC's transfusion services supervisor.

Shifts in Usage

To ensure an adequate blood supply, blood centers and hospitals alike must accurately anticipate trends in blood usage. In general, usage has dropped during the last decade. Only in the past year has demand increased significantly in some regions of the country.

In the 1980s, awareness of AIDS and the potential risk of infection from transfusions prompted dramatic changes in blood banking and transfusion medicine. The public's fears about receiving blood stimulated researchers to look more carefully at the indications for transfusion, says McCullough. Physicians learned that they could safely be more conservative in using blood. They now know that patients often can tolerate more blood loss and lower hemoglobin before needing a transfusion.

Improvements in patient care also made a difference. McCullough cites "the ability to get to someone in trauma quickly and begin emergency care, better techniques for IV fluid replacement,

and separated into components ...



better management of blood loss in the operating room, the ability to retrieve some blood that is lost in the operating room and give it back to the patient—medical care that has put patients in better condition.



Finally, the blood is placed in large coolers and distributed to hospitals.

If general care of the patient is better, it allows us to be more conservative about blood replacement.”

The cost of blood also affects usage trends, particularly as new tests and changes in technology add expense. The price of blood components varies from center to center, but on average, standard red blood cells cost about \$80 per 250 ml unit; platelets cost between \$35 and \$48 per unit. “Physicians who are generally involved in the blood banks—the pathologists—have more focus on cost,” notes Bowman. “Clinicians who use the blood for their patients must care first for the patients, but they also have an awareness of cost.” Bowman adds, however, that concern about appropriate blood use drives usage more than cost does.

Although overall utilization of blood dropped during the last decade, demand has increased again in some major cities. “A lot of the blood centers have noted an increase of about 10 percent,” says Rachel Maines, a representative of the National Blood Exchange. Some procedures that use considerable amounts of blood, such as transplants, are becoming more common. The possibility of increased demand is prompting blood centers to step up donor recruitment efforts.

Understanding Donors

Most donors are between ages 30 and 50. According to the American Red Cross, the average donor is

college-educated, employed, white, male, married, and has an above-average income. Blood centers are striving to attract new donors and increase the frequency of giving among current donors. Some are trying to draw more ethnic minority donors, since, for some patients who require chronic transfusion, the best match for a blood transfusion is a donor of the same genetic, ethnic, and racial background. Many blood banks are working to make giving more convenient by augmenting bloodmobile service and community drives.

“There is concern that as the population ages, and because older people use more of the health care system than younger people do, the demand for blood may go up,” says McCullough. Some observers in the blood collection community feel that young people today are less likely to give blood than in previous generations. But no data are available to show whether young people are really donating less than young people were 20 or 30 years ago, says McCullough.

Attracting and maintaining blood donors is a continual challenge. “With 280 million Americans, people always assumed that the potential blood supply was elastic, that there would always be donors. In fact, it’s increasingly difficult to get qualified donors to donate,” says Harvey Klein, M.D., director of the Department of Transfusion Medicine, National Institutes of Health.

Evolving Collection Technologies

Donor recruitment and retainment may receive a boost in the future as collection and transfusion technologies evolve. One substance being explored is thrombopoietin, which controls platelet produc-

Robert Samuelson, joined by his wife, Marynelle, thanked Red Cross workers for the 400-plus pints of blood he received last spring after suffering injuries when a tornado ripped through his family farm in Comfrey, Minnesota.



tion. When thrombopoietin is given to platelet donors, they generate huge numbers of platelets, which can then be collected. Researchers are examining whether giving patients large quantities of platelets in one dose will reduce the number of transfusions they need.

There has also been much talk about artificial blood, but a true blood substitute is nowhere near a reality. "A blood substitute certainly won't replace most blood transfusions," says McCullough. "It may replace some transfusions in limited circumstances. But it may increase the total need for blood for a couple of reasons."

Blood Facts

- More than 90 percent of individuals or their immediate family members will need a blood transfusion during their lifetime.
- Less than 5 percent of the eligible population donates blood regularly.
- Several patients can benefit from one unit of donated whole blood, which is normally separated into several components—red blood cells, plasma, platelets, and cryoprecipitated anti-hemophilic factor. Plasma may also be pooled with plasma from other donors and fractionated into purified proteins such as albumin, immune globulin, and clotting factors.
- Donors can give blood safely every eight weeks.
- The average person has 10 pints of blood in his or her body.
- Red blood cells can be preserved in liquid form for 21 to 42 days; frozen red blood cells can be kept for up to 10 years.
- Platelets must be used within five days.
- Whole blood is seldom given to a patient; instead, individual components—red cells, plasma, and platelets—are given.
- The average cost for standard red blood cells is about \$80 per 250 ml unit; platelets cost between \$35 and \$48 per unit.

He explains that the blood substitutes that are closest to being licensed are hemoglobin-based. Inefficiency in the hemoglobin manufacturing process results in some waste. And, McCullough adds, artificial blood may be used in cases in which blood is not used now. "It might be that this blood is carried on ambulances and given at accident sites or used in cases of stroke or organ perfusion," he explains. "All of these will be new uses. Also, the substitutes under development at this point have a very short intravascular life span—maybe a day or two—which would limit the situations where the substitute could be used." (The intravascular life span of blood is 120 days.)

One recently introduced process that is gaining ground is universal leukocyte reduction of cellular blood components. In leukoreduction, the number of white cells in blood components is reduced, generally through filtration. In September, the Blood Products Advisory Committee of the Food and Drug Administration recommended leukocyte reduction for all donated blood. "There is no doubt that leukoreduction reduces the risk of reactions, alloimmunization, the rate of refractoriness to platelet transfusion, and the risk of CMV transmission," wrote Ted Eastlund, M.D., medical director of North Central Blood Services, in the January 1999 issue of *Crossmatches*. "Leukoreduction brings benefits to most patients who receive blood transfusion."

Leukocyte-reduced blood components are more expensive than traditional components, which leads to tough decisions about cost vs. value. "I think in the long run it would benefit the communities if we switch to all leukocyte-reduced," says Bowman. "Ultimately, I think it will happen, but people are taking a closer look at it because it is expensive."

In the rapidly changing field of blood services, one certainty is that the need for blood will continue far into the foreseeable future. Fortunately, the blood banking and therapeutic medicine communities remain focused on the intricate task of replenishing this critical life source.

MM

Jodi Ohlsen Read is a freelance writer and an editor for the Minnesota Medical Foundation.

Photos pages 15, 17, and 18 (top) by David Ellis. Photo page 16 by TEK Image/Science Photo Library/Photo Researchers. Photo page 18 (bottom) courtesy of American Red Cross.

Blood safety and resources continued next page.

How Safe Is Safe Enough?

The blood supply is safer today than ever before, as those in the blood banking community are sure to tell you.

Ensuring blood safety begins with screening, followed by testing and more testing, and sometimes by treating the blood.

Before donors even hold out a willing arm, they must answer a barrage of questions. First, the prospective donor must be at least 17 years old, weigh at least 110 pounds, be in general good health, and not have given blood within 56 days. Next, there's the questionnaire. The American Red Cross' North Central Blood Services form includes 50 questions, asking, for example, if the prospective donor has had Chagas disease or babesiosis, has had a tattoo or piercing in the last 12 months, or has a relative who had Creutzfeldt-Jakob disease. If the potential donor isn't excluded at this point, there is a brief physical exam. Then the person's blood is drawn, labeled, and sent to a laboratory for testing.

Each unit of blood must be tested for HIV 1 and 2 (antibody and antigen), hepatitis C and B and hepatitis B antigen, syphilis, and HTLV 1 and 2. Each unit is also classified by blood group and Rh factor.

This spring, another layer of testing was introduced that should encompass all blood transfusions by September. Nucleic acid testing (NAT) screens donated blood and plasma for viral nucleic acids, using gene amplification procedures such as the polymerase chain reaction. "The nucleic acid testing will offer a significant measure of safety for hepatitis C," says Robert Bowman, M.D., CEO of North Central Blood Services and assistant professor in the Department of Laboratory Medicine and Pathology at the University of Minnesota. "For HIV, it will close the window a little more, but that window was quite narrow to begin with."

The "window" represents the infectious period when HIV is circulating in the blood but conventional tests cannot detect viral antigens or antibodies. It has been estimated that NAT could reduce the infectious window for HIV from the current 16 days to about 10 days; the window for hepatitis C could be decreased from 70 to 90 days to 10 to 30 days.

Although NAT is still in the research and development stage, the Food and Drug Administration (FDA) is allowing many blood collection organizations to use the test under the Investigational New Drug application process. One drawback is that NAT may take longer than routine testing.

Some people worry that additional testing could adversely affect the blood supply. "We've developed all kinds of screening tests to improve the safety of blood," says Harvey Klein, M.D., director of the Department of Transfusion Medicine, National Institutes of Health. "But by leaning in the direction of blood safety, we may be sacrificing availability. Every time we introduce an intervention or testing, we're going to eliminate potential donors. This is a good thing if they are truly risks."

S. Breannan Moore, M.D., chair of the Division of Transfusion Medicine at Mayo Clinic, agrees. "Any tests will have some false positives," he says. "We exclude those [donors] with false positives, even though the majority may not be true positives. If we keep [adding more tests], we increase the chance that there will be false positives—and those who donate frequently have more chance of coming up false positive. You weed out some of your very best donors." Retesting, or reentry, can be a slow process. For some tests, potential donors who test positive can be retested in six months but may not donate until they test negative.

Other Innovations

Plasma treated with solvents and detergents to inactivate enveloped viruses has been available for about a year. Treated plasma has been shown to carry less risk for viruses, including HIV, hepatitis B, hepatitis C, and mutant or variant viruses that may be undetectable using current screening tests. Unfortunately, the solvent treatment does not inactivate nonenveloped viruses, such as parvovirus B19 and hepatitis A.

"[This process] offers a significant measure of improvement, but it comes with an increase in price," says Bowman. "In the health care marketplace today, people care a lot about that. They must weigh the benefits and the risks, and the value for the price."

Safety vs. Cost and Availability

Other developments in screening and testing are close behind. The FDA goal is to ensure the safest possible blood supply, regardless of cost, a goal that could be problematic, according to Jed Gorlin, M.D., director of Memorial Blood Centers of Minnesota. "If a new test saves three lives, is it worth it? It is if you are one of those three. But if those millions of dollars were spent on bicycle helmets, we'd probably save more lives."

Who is paying for this additional testing? "A lot of

the increased cost of supplying safer and adequate blood is not being reimbursed," says Klein. "It costs money to do the tests and for the units of blood that are going to be discarded and for the record-keeping. When the FDA says a test has to be done, where does the money come from to pay for the testing? From the hospitals? From the blood centers? From the patients?"

Although the blood supply is indeed the safest it's ever been, as new tests continue to be added, the resulting costs must be absorbed by patients, hospitals, and blood centers. At what point is the blood supply safe enough? As Klein says, we err on the side of safety.

—Jodi Ohlsen Read

Who's Who in the Blood Business

Minnesota Blood Centers

American Red Cross North Central Blood Services
100 S. Robert Street
St. Paul, MN 55101
651/291-4600

Arrowhead Regional Blood Center
5115 Burning Tree Plaza
Duluth, MN 55811
218/723-8080

Mayo Clinic
Donor Services
200 First Street SW
Rochester, MN 55905
507/284-2511

Memorial Blood Centers of Minnesota
2304 Park Avenue
Minneapolis, MN 55404-3789
612/871-3300

National Organizations

American Association of Blood Banks (AABB)
8101 Glenbrook Road
Bethesda, MD 20814
301/907-6977
www.aabb.org

Established in 1947, the American Association of Blood Banks includes hospital and community blood centers, transfusion and transplantation services, and individuals involved in activities related to transfusion and transplant medicine.

American Blood Resources Association
1350 I Street, NW, Suite 1020
Washington, DC 20005
202/789-3100

Affiliated with the International Plasma Products Industry Association, the American Blood Resources Association is the trade association representing the plasma collection industry.

America's Blood Centers
725 15th Street, NW, Suite 700
Washington, DC 20005
202/393-5725

Founded in 1962, America's Blood Centers is a national network of nonprofit, independent community blood centers.

Harvard Blood Forum
Harvard School of Public Health
718 Huntington Avenue
Boston, MA 02115
617/432-0204

The Harvard Blood Forum is a panel of leaders from the blood banking community, facilitated by Leonard Marcus, Ph.D., director of the Program for Health Care Negotiation and Conflict Resolution at the Harvard School of Public Health.

National Blood Data Resource Center (NBDRC)
The NBDRC is a not-for-profit corporation founded by the American Association of Blood Banks; it is located in Bethesda, Maryland.

National Blood Exchange
8101 Glenbrook Road, Suite B
Bethesda, MD 20814
800/458-9387

The National Blood Exchange, established in 1953 as part of the American Association of Blood Banks, provides blood and components to facilities experiencing shortages through a nationwide resource-sharing network.



Second Act

*For donors and recipients
alike, organ transplants
enhance life's script.*

By Jennifer Thistle



“Your college years will be the best years of your life.” That prophecy stayed with me as I made the transition from high school to college, and again as I transferred from the College of St. Catherine, having changed my major a third time, to the University of St. Thomas, where I began my sophomore year in the journalism program. My move to my new school only two miles up the road in St. Paul was made easier by the welcome I received from Jenny Bradow, my resident adviser.

Over the course of the year Jenny and I became good friends, enduring late-night study sessions and spending weekends at college sporting events and parties with our friends. Our friendship continued to flourish during our junior year even though she remained on campus as a resident adviser and I moved off campus. Our junior year was filled with college dances, exams, 21st birthdays, first internships, and the final episode of “Cheers.”

But junior year—and our good times—ended in tragedy. On May 25, 1993, Jenny Bradow was declared brain-dead, the victim of a drunk driver.

As Jenny’s family and friends mourned her death, four other families rejoiced at the miracle of life bestowed by the gifts of her pancreas, kidneys, and liver. Among those rejoicing was the family of Fran Kaye—Fran was blessed with Jenny’s heart. By complete coincidence, Fran is the mother of my freshman-year roommate at the College of St. Catherine.

live & then give

MMA's Campaign for Donors

The Minnesota Medical Association is launching a campaign to educate physicians and patients about the importance of organ and tissue donation. The campaign, called "Live & Then Give," is aimed at encouraging you, the physician, to make the commitment to be an organ and tissue donor. "Live & Then Give" also stresses the messages that potential donors most need to hear, including:

- Organ and tissue donors do not receive less aggressive medical care than nondonors;
- Organ and tissue donation is not considered until all possible efforts to save the patient's life have failed;
- Neither organ nor tissue donation leaves the donor disfigured or changes the donor's appearance for viewing;
- Any costs related to organ and tissue donation are paid up front by the recovery agencies and ultimately by the recipients; and
- All major religions in the United States support organ and tissue donation.

MMA organ and tissue donor reference materials, including the "Live & Then Give" physician resource guide, which answers questions such as "How does the donation process work?" and "How are donors and recipients matched?" are available for physicians. The MMA also has "Live & Then Give" brochures, which include a brief history of nationwide donations and common questions and straightforward answers about organ and tissue donation. Most important, it includes two uniform donor cards to be completed and carried by potential donors and their legal next of kin. Camera-ready copies of the brochure are also available to clinics and hospitals for copying and distribution to patients. The MMA also has a limited supply of "Share your life, share your decision" buttons to encourage donation.

One of the campaign's most important messages is that **potential organ and tissue donors must notify their legal next of kin about their decision to be a donor.** A person's signed donor


card, or a donor sticker on a driver's license, is not enough. Physicians cannot act on a patient's wish without the legal next of kin's consent.

Jenny's family knows this firsthand. Before they were approached by LifeSource, the federally designated nonprofit organ recovery organization that serves Minnesota and North and South Dakota, Jenny's parents, Don and Judy Bradow, hadn't thought about the option to donate. But knowing Jenny's love of life, and her intention to get a nursing degree, they chose to donate. Later, they discovered that Jenny's driver's license identified her as a donor, knowledge that comforted them.

"Jenny is alive in our hearts, yet she's physically alive in other people," says Judy, who now speaks to various groups on issues such as drunk driving and organ donation. "To know something so good can come out of something so bad—knowing that people are alive because of Jenny—is a wonderful feeling and the reason I encourage everyone to be an organ donor."

More than 1,300 people in Minnesota are waiting for an organ transplant. Nationwide, the waiting list exceeds 61,000 individuals. As physicians, you can help reduce these numbers. By being an organ donor, you can share your decision and provide the facts and encouragement necessary for your patients to decide that organ donation is a worthwhile cause. When discussing health issues as a routine part of any checkup, mention organ and tissue donation casually and offer to answer any questions. If individuals understand the facts, they are likely to consider becoming a donor—just as they are likely to get their immunization shots or buckle their seat belts in the car. Your decision to be an organ and tissue donor will likely prompt others to do the same, and will potentially save many lives.

One Oakdale physician already is an organ donor role model for his patients: MMA member Jim Steinmueller, M.D., a family practice physician at Eastside Medical Center in Oakdale. Steinmueller's sister, who was diagnosed with lupus about 18 years ago, had received a kidney from their mother, but after four years her health began to deteriorate and her



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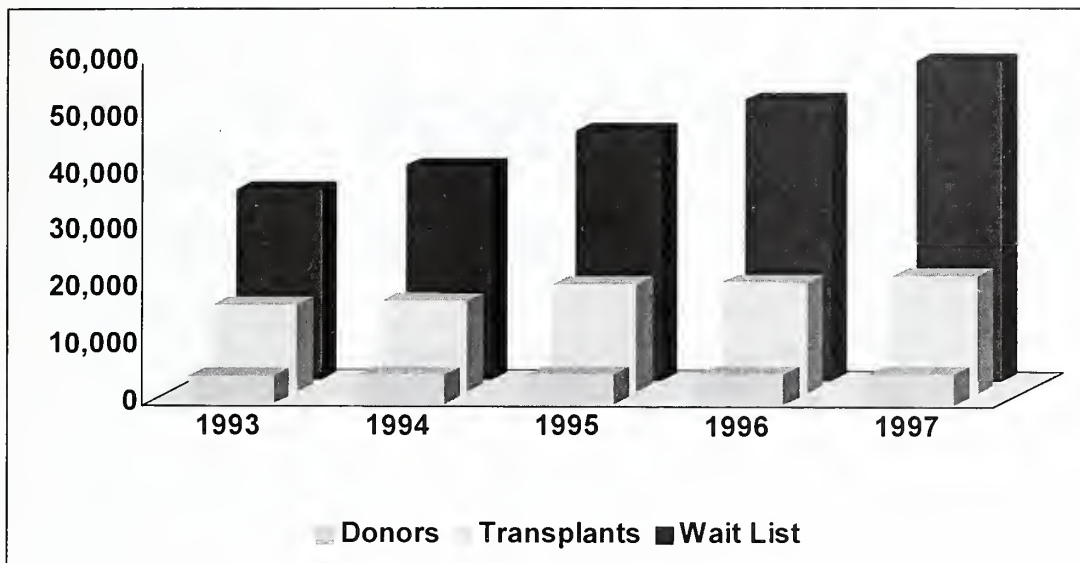


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Donors vs. Wait List



Graph by LifeSource

life expectancy was gauged at one to two more years. So on January 5, 1999, Steinmueller gave her one of his kidneys.

"Most of my patients are impressed that I'm in the medical field and also a donor," says Steinmueller, who has also decided to be an organ donor in the event of his death. But for now, he hopes that his kidney will add many years to the life of his 45-year-old sister. "I encourage my patients to be donors, and I know my decision to be a donor certainly has them thinking about it. Technology is available today that we didn't have years ago, and more and more people can help save lives."

On March 26, 1993, Fran Kaye was listed for a heart transplant. By mid-May that year she was told that she would likely die within the week without a new heart. With funeral and church arrangements already made, she says, "I was at peace. I kept telling the doctors that I just knew in my heart I would get a heart transplant." And she did.

Fran beat the odds. She and Jenny had the same blood type, were similar in size, and Fran was among the nation's sickest people waiting for a heart transplant. Nationwide, 10 people die each day while waiting for a transplant.

In July 1997, more than four years after Jenny's death, Fran and her daughter met the Bradow family at a heart donor/recipient event sponsored by Second

Chance for Life, a support group for heart transplant recipients. Although donors and recipients aren't required to make contact after the transplant, LifeSource encourages anonymous correspondence. Often, the recipient will get in touch with the transplant center, which in turn contacts LifeSource, which passes on a message to the donor. If both parties agree to it, a meeting is arranged. Such meetings have become increasingly common in recent years.

The Bradow and Kaye families have kept in touch, sending holiday cards and talking on occasion. And Fran remains healthy; she has cut salt, fat, and cholesterol from her diet and exercises regularly. "It's very important to the donor families that recipients take good care of their health—and it's very important to me, too."

"I feel like the Bradows are another part of my family," says Fran, who has one adult daughter. "I am a part of them. I have the heart that they created through their love."

MM

Jennifer Thistle is MMA outreach field representative.

Donation Resources

To learn more about organ, tissue, and eye donation, contact the following organizations:

LifeSource (organ donation) 888/536-6283
 American Red Cross (tissue donation) 800/336-6283, ext. 4621
 Minnesota Lions Eye Bank 888/536-6283
 Or call the Minnesota Medical Association at 612/378-1875 or toll-free at 800/342-5662. Ask for Lorrie Holmgren, director of communications.

The National Marrow Donor Program

Giving patients another chance at life—

The world's largest marrow registry—more than 3.5 million volunteer donors—can now find a potential match more than 80 percent of the time.

By Tim Walker

Bone marrow transplantation is a well-established lifesaving treatment for a wide range of blood disorders such as leukemia and aplastic anemia, as well as for certain immune system deficiencies and genetic disorders. For many patients, a bone marrow transplant offers the only chance for a cure. Unfortunately, only about 30 percent of patients who need a marrow transplant have a suitable donor within their family; the rest must seek a matched donor from the general population.

For more than 10 years, patients without a family donor have turned to the National Marrow Donor Program® (NMDP) in hopes of finding a match. The NMDP is a nonprofit organization based in Minneapolis. This registry, which includes more than 3.5 million individuals, is the world's largest registry of volunteer marrow donors. Since its establishment in 1986, the NMDP has paved the way for more than 8,000 marrow transplants.

Finding a Match

The process of searching the NMDP Registry for a matched volunteer marrow donor is quite different from the process of obtaining a solid organ for transplantation. A major difference is that patients needing a marrow transplant are not put on a waiting list, unlike patients seeking transplants involving solid organs such as hearts, lungs, and livers. In a bone marrow transplant, a patient and donor must have nearly identical immune system characteristics, making it very unlikely that patients searching the

NMDP Registry would ever be in competition for the same potential donor.

Instead, a patient's chances of receiving a bone marrow transplant may depend on whether the NMDP Registry has a suitable donor. Bone marrow forms the basis of the body's immune system, and a marrow transplant essentially transfers an entire immune system from the donor to the recipient. That means the immune systems of the donor and the recipient must be extremely compatible.

How often, then, do patients find matched donors on the NMDP Registry? Because the NMDP has recruited so many volunteer donors to join the registry, a patient's overall chance of finding at least one fully matched potential donor is greater than 80 percent. However, because the registry contains fewer minority volunteers than Caucasian volunteers (reflecting the distribution of the U.S. population), patients in minority racial and ethnic groups are less successful at finding donors.

African Americans, for example, find matches about 60 percent of the time, and Asian/Pacific Islanders have a 62 percent success rate. The NMDP is striving to increase the chances of minority patients by diversifying the registry through intensive donor education and recruitment initiatives focusing on communities of color.

Searching the NMDP Registry

Any physician treating a patient who is a potential candidate for a bone marrow transplant can contact the NMDP and conduct a free search of the volunteer donors who have registered with the NMDP. The physician provides the NMDP with basic information about the patient (age, sex, disease diagnosis, stage of disease) and the patient's tissue typing results.

Within 24 hours, the NMDP sends the results of this preliminary search of the registry to the physician. These results tell the physician how many volunteer donors on the registry are perfect or nearly perfect matches with the patient.

If the physician and patient decide to proceed with a transplant using a donor on the NMDP Registry, the next step is to ask the NMDP to contact one or more volunteer donors for further testing to confirm the suitability of the match. At this point, the patient must be under the care of a physician at one of the more than 100 NMDP-approved transplant centers. This is also when the NMDP starts charging for its services.

The Costs

If a match is identified through the NMDP, donor "workup" costs will be incurred in preparing the donor for marrow collection. These costs include further blood tests, a thorough physical exam, and an information session to obtain informed consent from the donor. Once the donor has agreed to the procedure, there are surgical collection costs and marrow transportation costs. Altogether, these costs can range from \$22,700 to \$35,000.

Most of the costs related to the actual transplant come from a patient's hospital stay. These costs typically exceed \$200,000 but can vary widely, depending on the complexity of the transplant and the presence of any complications. Costs also vary widely among the different transplant centers in the NMDP network. The extent to which the actual costs will be reimbursed by insurance companies may depend on preexisting contracts between an insurer and the transplant center.

The Donation Process

Donors are not asked to pay any of the costs related to donating marrow. All costs of searching for a donor, preparing the donor for donation, and collecting and transporting the marrow are billed to the NMDP transplant center where the patient is receiving treatment.

If a suitable volunteer donor is found, the NMDP arranges an education session for the potential donor that explains the donation process in detail, including the possible health risks that are associated with any surgical procedure. Volunteers who agree to proceed with a marrow donation are given a complete physical examination, and the NMDP schedules a marrow collection at a convenient NMDP-approved hospital.

While under general or regional anesthesia, the donor will have about 1 liter of marrow withdrawn from both sides of the pelvis. Marrow is extracted from the donor about a teaspoonful at a time, through a hollow needle sturdy enough to penetrate bone. The donor is able to replenish the amount withdrawn within two or three weeks.

Patient Preparation

While the volunteer is preparing to donate marrow, the patient is receiving high-dose chemotherapy and/or radiation therapy. This pretransplant conditioning not only destroys the cells causing the patient's disease

but also obliterates the patient's marrow function and immune system. The marrow collection is timed to occur just as the patient is completing this pretransplant conditioning; the marrow is then transported to the patient by a trained courier.

Soon after it arrives at the patient's hospital, the marrow is infused into the patient's bloodstream, where it migrates to the interior of the bones and begins the process of restoring the immune system. Immediately after the transplant, the patient has an underdeveloped immune system and is therefore very susceptible to infections and other complications.

The long-term survival rates for bone marrow transplant recipients vary widely and are affected by many factors, including the recipient's age, disease diagnosis, stage of disease, and time interval from diagnosis to transplant. Younger patients, patients transplanted in the earlier stages of a disease, and patients transplanted soon after diagnosis have a better chance of survival. Overall, patients receiving marrow from unrelated donors experience survival rates of 40 percent to 60 percent—for diseases that would otherwise be fatal.

Future Success

For more than 30 years, bone marrow transplantation has been the only chance for a cure for thousands of patients with deadly diseases. In that time, bone marrow transplantation has evolved from a last-ditch effort at survival to an initial and often preferred treatment option.

That progress continues today on two fronts. Because of the increasing number of volunteers registering with the NMDP, more and more patients can find a matched donor. In addition, the medical knowledge about bone marrow transplantation continues to grow steadily, a trend that means better survival rates for patients who do find a matching donor and receive a bone marrow transplant.

The NMDP is expanding into new areas that will allow patients better access to transplantation. Patients who need marrow transplants need new stem cells, and marrow has been the prominent source of stem cells for the past 10 years. According to new research, additional sources of stem cells could provide more options to patients—including umbilical cord blood (stem cells collected from the umbilical cord after the birth of a baby) and peripheral blood (stem cells separated from whole blood through a procedure called apheresis).

For more information, call the NMDP at 800/MARROW-2 (627-7692), or visit the NMDP's Web site at <http://www.marrow.org>.

Physician Referrals

The NMDP staff can help you research and interpret the various stem cell transplant options available for your patients through the NMDP. Understanding the treatment options early in a diagnosis can often make a difference in patient outcome. For more information about the search process, please call the Office of Patient Advocacy at 888/999-6743. **MM**

Tim Walker is the medical/scientific writer for the National Marrow Donor Program.

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The New Lyme Virus Vaccine

What Minnesota Physicians Need to Know

Not all your patients are candidates for LYMERix™.

Robert M. Jacobson, M.D., and Gregory A. Poland, M.D.

Editor's Note: With the FDA approval of the new Lyme disease vaccine came much hype and perhaps some hope for prevention. As with each recent new vaccine, the decision to vaccinate or to recommend no vaccination is complex. This article presents the issues, indications, and contraindications for the new Lyme disease vaccine. With the widespread direct marketing for this immunization, most of us can expect to get many questions. Here are a few answers.

—Barbara P. Yawn, M.D. M.Sc.
Series Editor

The availability of a Lyme disease vaccine has caused quite a stir. It is the first drug proven to prevent the disease, and it comes with many caveats. The new vaccine, which was licensed by the Food and Drug Administration on December 21, 1998, is manufactured by SmithKline Beecham Biologicals under the brand name LYMERix™. It contains 30 mcg of a lipidated, recombinant outer-surface protein A (OspA) of the causative agent of Lyme disease in North America—*Borrelia burgdorferi*. This vaccine, like many others, is adjuvanted with aluminum salts.

Other current strategies to prevent Lyme disease include avoiding tick habitats, such as leaf litter, low-lying vegetation, and wooded, bushy, and overgrown grassy areas. The bacteria that cause Lyme disease are carried by *Ixodes scapularis*, commonly known as the “deer” or “black-legged” tick. Wearing protective clothing, using repellents to prevent tick attachment, checking for ticks, removing attached ticks promptly, and employing community measures to reduce tick abundance are yet other deterrents. Although the disease is not transmitted until the tick has been attached for at least 24 hours, these precautions have had little impact on disease incidence.

The first symptoms of Lyme disease usually include a distinctive rash, characterized by a reddened area surrounding a clear center. The rash may expand to cover an extensive area and can appear in several places on the body. Other early symptoms include fever, headache,

fatigue, chills, and muscle or joint pain. According to the Minnesota Department of Health, more than 2,000 cases of Lyme disease have been reported in the state since 1982, including 261 last year.

The vaccine is indicated for use in individuals aged 15 years to 70. It is administered by intramuscular injection in three doses. The first dose is followed by the second dose one month later, and by the third dose 12 months later. Ideally, the first and second doses should be timed so that the second is received several weeks before the beginning of the *Borrelia burgdorferi* transmission season, which in Minnesota and Wisconsin is usually April. Deer ticks are most active between April and September. The third dose should be given at the beginning of the transmission season the next year.

According to information provided with LYMERix™, the vaccine's efficacy, or ability to prevent disease, appears to be about 50% after two doses and about 78% after three doses. The efficacy has broad confidence intervals. The 95% confidence interval around the 50% figure is 14% to 71%, reflecting the relatively small number of study subjects (approximately 5,000 cases and controls each) and the small number of Lyme disease cases contracted among controls (43 definite cases). The 95% confidence interval around the 78% figure is 59% to 88%. Further studies with larger numbers of subjects should narrow those confidence intervals and provide more precise efficacy rates. The duration of immunity beyond the second year is not known, nor has the need for boosters been determined.

Like other vaccines, the Lyme vaccine has been associated with some adverse effects. Local reactions at the site of injection were reported more frequently in vaccine recipients than in placebo recipients. Muscle ache, flu-like illness, fever, and chills in the first 30 days after a dose were more common in vaccine recipients but did not affect more than 5%. Although joint inflammation did not differ between vaccine and placebo recipients, vaccine recipients reported significantly more transient joint pain and muscle pain after each dose. The

vaccine should be used cautiously in arthritis patients because, theoretically, the vaccine could worsen arthritis in such patients.

The Division of Vector-Borne Infectious Diseases of the Centers for Disease Control and Prevention recommends targeting the Lyme disease vaccine to persons at risk for exposure to infected vector ticks. The risk is assessed by considering the geography of Lyme disease and the extent of exposure to the sites. Vaccinating people who have frequent or prolonged exposure to ticks in areas where Lyme disease is endemic is likely to be effective. For persons exposed only briefly or intermittently to the tick habitat in those areas, the benefits of the vaccine vs. the benefits of early diagnosis and treatment are not clear. The Advisory Committee for Immunization Practices, a federally sponsored panel of vaccine experts, is expected to make more formal recommendations for the use of LYMERix™ later this year.

The vaccine has several limitations. Although children are most at risk for Lyme disease, the vaccine has not yet been licensed for use in those younger than 15 years. Preliminary evidence does indicate effectiveness in children 1 to 15 years of age, however, so this restriction may change.

The vaccine's effect depends entirely on the recipient's producing an antibody that is ingested by the tick during the bite. The effectiveness of cellular immunity after circulating antibody levels drop is unknown, as are the need for and effect of repeated doses of the vaccine.

The vaccine will not prevent diseases besides Lyme disease, such as babesiosis and ehrlichiosis, even if they are transmitted by the same ticks. As already discussed, this vaccine also is far from 100 percent effective against Lyme disease. That means the vaccination cannot be substituted for the other preventive measures previously mentioned. Vaccinated patients will still need to take the same precautions as those who are not immunized.

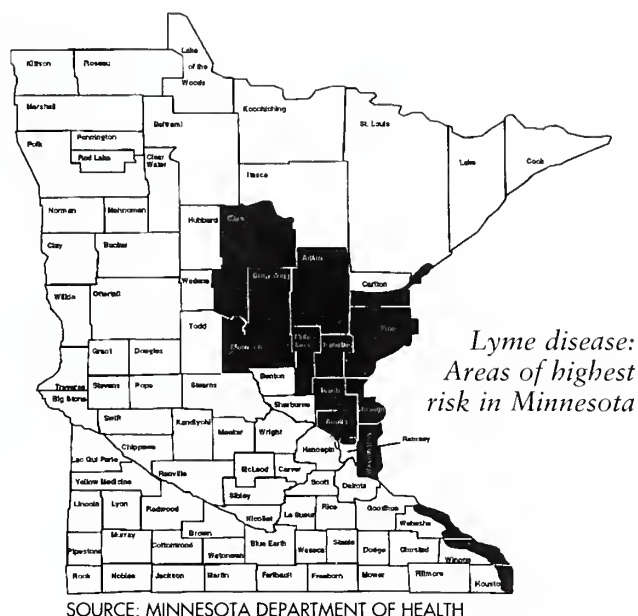
Finally, the currently available enzyme immunoassay (EIA) test for Lyme disease will give a false positive reading after vaccination, requiring additional testing with the Western Blot on those who have been vaccinated with LYMERix™. As a result, it will be more difficult to diagnose Lyme disease after vaccination.

Some physicians have noted a Lyme neurosis among their patients—an incapacitating anxiety about Lyme disease and its sequelae. Most of those who have such anxiety, however, are not at risk for the disease. Providing the vaccine to these individuals simply to quell their fears would be inappropriate.

Who's at Risk in Minnesota?

In Minnesota, the area where Lyme disease is endemic is primarily the drainage basin of the St. Croix River. The ticks are endemic to Washington County along the St. Croix Valley, and to Chisago, Anoka, Pine, Mille Lacs, Crow Wing, Kanabec, and Atkin counties. But in most counties in Minnesota there is no risk.

People who have cabins in the affected counties and who spend much time in wooded or brushy areas should consider the vaccine. Similarly, residents of eastern Wash-



ington County and rural, wooded areas of Anoka County who spend lots of time outside doing yard work or engaging in recreational activities around the home also should consider the vaccine, as should utility line workers and others whose jobs require working in areas where ticks are prevalent. Other high-risk occupations include wildlife management, landscaping, and forestry.

The vaccine is inappropriate for suburban dwellers in areas such as Olmsted County, where the tick is not endemic. Nor is the vaccine appropriate for persons who have summer cabins in affected areas but who spend no time in wooded or brushy areas.

The Lyme disease vaccine is the first successful vaccine against a growing menace to Minnesota outdoor living. But it's a mixed bag, presenting complex indications, precautions, and contraindications. Clinicians will need to be prepared to discuss and explain its use. **MM**

Robert Jacobson works in the Pediatric and Adolescent Medicine Department in the Mayo Vaccine Research Group at the Mayo Clinic. Gregory Poland works in the Internal Medicine Department in the Mayo Vaccine Research Group at the Mayo Clinic.

SUGGESTED READING

- Centers for Disease Control and Prevention. Notice to readers: availability of Lyme disease vaccine. *Morb Mortal Wkly Rep* 1999;48:35-6,43.
- Lyme disease guidelines for Minnesota clinicians: epidemiology, microbiology, diagnosis, treatment, and prevention. Minneapolis: Minnesota Department of Health, March 1998.
- Meltzer MI, Dennis DT, Orloski KA. The cost effectiveness of vaccinating against Lyme disease. *Emerg Infect Dis* 1999;5(3).
- Sigal HL, Zahradnik JM, Levin P, et al. A vaccine consisting of recombinant *Borrelia burgdorferi* outer surface protein A to prevent Lyme disease. *N Engl J Med* 1998;339:216-22.
- Steere AC, Sikand VK, Meurice F, et al. Vaccination against Lyme disease with recombinant *Borrelia burgdorferi* outer-surface lipoprotein A with adjuvant. *N Engl J Med* 1998;339:209-19.

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ANNOUNCEMENTS



MMA Wants New and Renewing Members

"Our 1999 membership efforts continue as the renewal cycle nears its close," said Joe Shulka, MMA director of membership. "Eighty-nine percent of 1998 members have renewed their memberships, and 425 new members joined in the last six months."

Shulka asks physicians whose memberships are expiring to call the membership staff as soon as possible at 612/378-1875 or 800/DIAL MMA (800/342-5662), so member benefits will not be lost.

"Present members are encouraged to discuss the value and benefits of membership with their colleagues," said Shulka. "A few minutes spent with a colleague can be critical in convincing them to continue their involvement in the MMA."

The MMA offers many opportunities for physicians and medical students to become involved in organized medicine in Minnesota.

Physicians and Patients See Wins, Losses as 1999 Session Ends

As the Minnesota Legislature ended the 1999 session May 17, the Minnesota Medical Association tallied its victories and losses.

"Overall, I'm very pleased with our efforts this year," said Dave Renner, MMA director of state and federal legislation. "Of course, we're not pleased that legislators did not repeal or phase out the sick tax, choosing instead to give out record tax breaks, which seemed more popular with the voters. However, we were successful in ensuring that the sick tax will not increase to 2 percent January 1, 2000, as current law requires. It will remain at its present rate of 1.5 percent for two years."

Legislative Wins

MMA victories included funding for tobacco prevention, the first increase in Medical Assistance payment since 1992, and tougher clean air legislation. Lawmakers also chose to exclude from the Health and Human Services Omnibus Appropriations bill abortion-related provisions that the MMA opposed.

A Tobacco Use Prevention and Local Public Health Endowment Fund will be established using 61 percent of the one-time tobacco settlement money received through January 2001. About \$24 million per year will be used for smoking prevention activities directed at youth.

"Creation of the endowment fund is a victory for Minnesota physicians

and their patients," said Judith Shank, M.D., MMA president.

The bill uses 39 percent of the settlement to create a Medical Education Endowment Fund of about \$378 million.

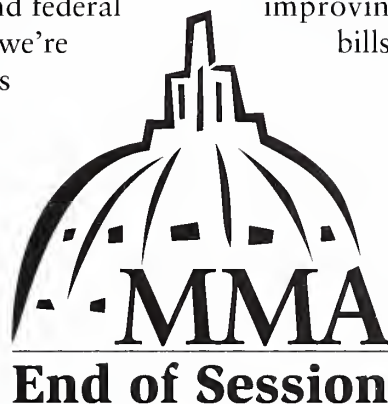
The MMA was instrumental in improving many health-related bills, including the pharmacy practice bill, the advanced practice nurse (APN) legislation, and the medical malpractice bill.

The MMA worked for several months with the Minnesota Pharmacists Association to develop acceptable

language for a bill that would have modified the Pharmacy Practice Act to allow pharmacists to independently administer immunizations and alter a patient's treatment regimen under a broad, ill-defined collaborative agreement. The bill that passed allows modification of drug therapies only under a specific protocol involving a patient's pharmacist and his or her treating physician.

APN Bill Improved

The MMA was instrumental in improving the APN legislation. The MMA had strongly opposed this legislation as originally drafted because it would have allowed APNs to independently practice medicine, including independently diagnosing, treating, and prescribing medications. After lengthy negotiations with the Minnesota Nurses



PHYSICIANS cont. on page 36

VIEWPOINT

Paul C. Matson, M.D.

Chair, MMA Board of Trustees



MMA Physicians Give to Their Communities

As physicians we have chosen an altruistic profession for our life's work. We heal, comfort, and save lives every day. We struggled for years to reach our present position, studying hard in medical school, working long hours during our residencies, and shouldering an enormous debt in medical student loans.

Now those of us who are well launched on our medical career enjoy the many benefits of our profession. Conscious of our good fortune, we are moved to serve our communities in ways that go beyond our regular medical practice.

I am constantly impressed by the many MMA members who give to others. Some provide charity care. The Gateway Clinic in Duluth and the Open Door Clinic in Mankato are two fine examples of clinics that serve people with no insurance who can't afford medical care.

Some MMA members travel to countries where there is a tremendous need for advanced medical care. Paul Sanders, M.D., MMA CEO, and several other Minnesota physicians have repeatedly traveled to the Ukraine, bringing modern medical supplies and medicines. They not only cared for patients but also helped

local physicians improve their diagnostic and treatment skills. Children's HeartLink, a Minneapolis-based international medical charity, has sent Minneapolis medical teams to Nairobi to give support to local cardiovascular programs.

These are just a few examples. The physicians involved in volunteer projects here in Minnesota and overseas are too numerous to mention.

A history of service to his community was a factor in the selection of MMA member Stephen England, M.D., for a one-year appointment as a White House Fellow. Dr. England, a pediatric orthopedic surgeon at Gillette Hospital, had participated in a medical mission in Ecuador and founded the Children's Health Enrichment Program in St. Paul, which provides teaching, mentoring and academic guidance to African-American teenagers. Now Dr. England is in Washington, D.C., serving in the federal government.

With so many individual MMA members serving their community, it isn't surprising that our medical association is involved in similar efforts. The MMA recently launched a campaign to help physicians, their families and their patients give the

ultimate gift – the gift of life. The MMA's Live & Then Give organ and tissue donor campaign gives us helpful information about the organ donor process as well as a camera-ready brochure that can be copied, folded, and given to our patients.

This campaign has given us opportunities to tell radio and television audiences as well as our patients about the importance of talking to their families about their decision to be an organ and tissue donor. Many people are not aware that even if they are listed as a donor on their driver's license, family consent is still necessary.

The need is critical. In Minnesota, more than 1,300 people are waiting for organs. Imagine the fear and anxiety that they and their family must experience. In the United States, about 10 people die every day because not enough organs are available, yet surveys have shown that eight out of 10 Americans are willing to be organ donors.

Giving the gift of life is especially appropriate for physicians whose lives have been devoted to healing. It is the ultimate win/win situation: a lifesaver for the recipient and a comfort to the donor's family. ■

Internal/External Appeals Will Protect Consumers

The Minnesota Medical Association has supported legislation that would give health plan enrollees the protection of an internal and an external appeals process.

The uniform complaint resolution process for health plans bill becomes law April 1, 2000.

Under this new law, each health plan company will be required to establish and maintain an internal complaint resolution process that an enrollee may use to appeal a health plan's utilization review decision. An enrollee, after exhausting the internal process, may submit a written request for an external review to either the commissioner of health or the commissioner of commerce.

"The passage of this bill

ensures that consumers will have trust in the process," said Dave Renner, MMA director of state and federal legislation.

The external review organization must have no conflict of interest with a health plan company or utilization review organization, have expertise in dispute resolution and health-related law, and ensure confidentiality of medical records and other enrollee information.

Any external review involving a medical determination must be performed by a health care professional who has expertise in the medical issue being reviewed.

The decision by the external review entity is non-binding on the enrollee but binding on the health plan company. ■

MMA Forms Specialty Society Presidents Council

The first meeting of the Presidents' Council of Specialty Society Presidents (PCSSP) met recently at the Sheraton Inn Midway. The PCSSP takes the place of the Interspecialty Council.

"The MMA wants to establish good working relationships with all specialty and component societies," said Pat Hanson, MMA manager of quality and data, and the coordinator of the event.

Judith Shank, M.D., MMA president, hosted the evening meeting and explained the group's mission. She encouraged the specialty society presidents to forge a close alliance with the MMA.

"We want to increase communications and work together to improve public health and education," she said.

"The PCSSP is an excellent forum to share issues of mutual concern."

Paul Sanders, M.D., MMA CEO, provided an update on legislative issues, including the provider tax, the advanced practice nurse legislation, medical malpractice, and the licensure of lay midwives.

Thomas Marr, M.D., a consultant with Towers Perrin, a business consulting company, discussed professional and patient values and the lack of choice of provider for patients. He also spoke about the economic threats prevalent in today's market, decreasing reimbursement, patients' perceptions of the education and training of medical doctors and other practitioners, and the interdependence of physicians. ■

Loans Available

The Minnesota Primary Care Loan Fund offers interest rates as low as 0.5 percent below the prime rate for loans ranging from \$2,000 to \$500,000. Loans can be paid off over eight years.

The fund allows primary health care providers to maintain quality care by helping them invest in new equipment, expand their clinic, or market their practice.

The Robert Wood Johnson Foundation and the Minnesota Nonprofits Assistance Fund, along with lenders in each borrower's community, make it possible to offer about \$6 million in loans.

For more information call Mark Schoenbaum at the Minnesota Department of Health's Office of Rural Health and Primary Care at 651/282-3859 or 800/366-5424. ■

Call For Skin Cancer Posters

With summer approaching, you may need information to help educate your patients about skin cancer prevention.

The American Cancer Society has packets of colorful posters, pamphlets, and facts about preventing this disease, which is the most common of all cancers. Information warning teens about sun overexposure is timely and designed to appeal to this age group.

This year, more than 1 million people in the United States will be diagnosed with skin cancer.

Call Wendy O'Donnell, 612/378-1875 or 800/DIAL MMA (800/342-5662), or the American Cancer Society, 800/ACS-2345 (800/227-2345), for more information. ■

MMA Donations Help St. Peter Recover

The tornadoes that swept across southern Minnesota in March 1998 devastated several communities. Damage to the town of St. Peter was especially severe.

Minnesota physicians and health care workers, heeding a call from the Minnesota Medical Association, gave generously to the MMA Tornado Relief Fund, set up by the Minnesota Physicians Foundation to help the St. Peter community recover from the effects of the disastrous tornado.

The MMA Tornado Relief Fund was donated to the St. Peter Community Hospital and Health Care Center, which forwarded it to the Nicollet County Social Services Department.

These funds, added to donations from other organizations, were

earmarked for programs to relieve the townspeople's emotional damage

“ We couldn't have done these emotional recovery projects without the help of the Minnesota Medical Association. ”

*David Wright, Nicollet County
Social Services Supervisor*

caused by the tornado's destruction.

David Wright, social services supervisor for Nicollet County, said one of the emotional-recovery efforts was to mark the one-year

anniversary by providing remembrances, such as green lapel ribbons for St. Peter residents, and a banner thanking the volunteers. A task force is determining an appropriate commemoration to be placed in the town park, a tribute that will be financed with donated money.

“We couldn't have done these emotional recovery projects without the help of the Minnesota Medical Association and other organizations that donated funds to cover projects we could not use state and federal money for,” said Wright.

One year after this disaster, the town of St. Peter is rebuilding and the people of St. Peter are recovering—thanks, in part, to MMA members who generously contributed. ■

PHYSICIANS cont. from page 33

Association and the Minnesota Board of Nursing, the legislation was rewritten to require each APN to work within a plan of “collaborative management” agreed upon by the APN and a physician or surgeon. Certified registered nurse anesthetists also may work with podiatrists or dentists.

MedMal Bill Improved

Negotiations by the MMA greatly improved the medical malpractice bill before it passed and went to Gov. Jesse Ventura for his signature. The bill lengthens from two years to four years Minnesota's medical malpractice statute of limitations. The bill as originally drafted would have tripled the length of the malpractice statute of limitations by changing it to two years after *discovery* of alleged harm but no more than six years from the last treatment.

The MMA was able to persuade legislators to omit the “discovery rule” concept, which would have led to significant increases in malpractice premiums and overall health care costs, and substitute the simple four-year statute.

The Minnesota Trial Lawyers Association, which supported the original bill and a similar one introduced last year that the MMA successfully fought, has pledged not to try to further broaden the malpractice statute in the future, since the four-year provision is now law, effective August 1, 1999.

“This has been a very interesting legislative session,” said Renner. “While not our most successful session, many significant wins for physicians and patients have resulted from MMA efforts at the Capitol, and I'm happy that, with the help of many dedicated members, we were able to bring them about.” ■

Mentors Needed

As minority populations increase in the United States, the need for physicians to serve them becomes more urgent.

The MMA Minority Advisory Committee is working to establish a mentoring program for minority students in junior high school. The program would help minority students achieve the grades they will need to enter medical school.

Henry Smith, M.D., MMA chair of the Minority Affairs Committee and a member of the MMA Board of Trustees, said, “Mentoring is rewarding to students, but it can be even more rewarding to the physician mentors, as they contribute to the profession's future.”

If you are interested in mentoring, call Wendy O'Donnell at 612/378-1875 or 800/DIAL MMA (800/342-5662).

NEWS DIGEST

*People and places
making medical news*



People & Places

The University of Minnesota Medical Alumni Society has named **B.J. Kennedy, M.D.**, **C. Walton Lillehei, M.D.**, and **Ben Owens, M.D.**, as recipients of the 1999 Harold S. Diehl Award, an award for lifetime achievement given in honor of the medical school's fifth dean, **Harold Sheely Diehl, M.D.** These awards recognize outstanding professional contributions to the medical school, the university, and the community.

Kennedy, a 1945 graduate of the University of Minnesota Medical School, is often referred to as the father of medical oncology. He is Regents professor emeritus of medicine and Masonic professor emeritus of oncology at the medical school. Lillehei, a pioneer in the field of open-heart surgery, participated in the world's first successful open-heart surgery. Owens, a 1947 graduate of the University of Minnesota Medical School, was recognized for his outstanding contributions to patients, family medicine, and the School of Medicine in Duluth. He has been particularly influential in encouraging medical students to become rural family physicians.

Richard L. Stennes, M.D., known for his work in emergency medicine, received the second annual Alumni Recognition Award from the university's medical alumni society. This award honors individu-

als for exemplary achievements in the community or the field of medicine in the past five years.

Amos Deinard, M.D., M.P.H., is one of six University of Minnesota faculty members who have won a University of Minnesota Outstanding Community Service Award in 1999, its inaugural year. Deinard is director of the **Community-University Health Care Center/Variety Club Children's Clinic in Minneapolis**.

Douglas Yee, M.D., an oncologist, has been named to the Tickle Family Chair in Breast Cancer Research at the **University of Minnesota Cancer Center**. Yee is nationally known for his research on growth factors related to breast cancer cell proliferation. Money for the chair was donated by **Marilyn Tickle Bryant** and her brothers, **Robert** and **Richard Tickle**, on behalf of family and friends who died of cancer.

HealthPartners Medical Group presented awards for excellence in patient care, teaching, and research to five HealthPartners medical and dental providers. Among the five are **Hilary Pert Stecklein, M.D.**, a pediatrician and pediatric nephrologist; **Victor Kelmenson, M.D.**, a specialist in pulmonary medicine; **Peter Kernahan, M.D.**, a surgeon; and **Robert Maley, D.D.S.**, a dentist. The fifth, **J. Bryan Warren, M.D.**, an internist at **Regions Hos-**

pital, received the **Dr. Robert Mulhausen Award** in recognition of excellence in teaching and postgraduate education.

HealthPartners gave its 1999 Research Award to **Diane Madlon-Kay, M.D.**, for her clinical research in the areas of jaundice in infants, how patients select a family physician, and smoking patterns in a low-income urban population.

HealthSystem Minnesota, in St. Louis Park, has elected **Lee N. Newcomer, M.D.**, and **Gerald W. Timm, Ph.D.**, to its board. Newcomer is senior vice president, Health Policy and Strategy, for **United-Health Group**. Timm is founding chair and CEO of **Timm Medical Technologies Inc.**, a company that develops products for diagnosing and treating urological disorders.

The **Minnesota Academy of Family Physicians (MAFP)**, in St. Louis Park, elected **Jamie F. Peters, M.D.**, president-elect. Other family physicians elected to leadership positions in the MAFP include **Glenn Nemec, M.D.**, Monticello, vice president; **Keith L. Stelter, M.D.**, Moose Lake, speaker of the House; **Nicholas P. Bernier, M.D.**; Brainerd, vice speaker; **Robert Bösl, M.D.**, Starbuck, delegate to the American Academy of Family Physicians (AAFP); and **Nancy Baker, M.D.**,



St. Paul, alternate delegate to the AAFP.

The MAFP also announced the winners of its six annual awards. **James Eiselt, D.O.**, of Madelia, was named 1999 Minnesota Family Physician of the Year, the second Madelia physician to win the award in the 19 years it has been given. The Teacher of the Year Award was given to **Kathleen Culhane-Pera, M.D., M.A.**, who works with residents at Regions Hospital. **Phua Xiong, M.D.**, a third-year resident in St. Joseph's Family Practice Residency Program in St. Paul, received the Resident of the Year Award for significant contributions to family practice in the community. **Josh Crabtree**, a fourth-year student at the University of Minnesota Medical School, received the Medical Student Award for Contributions to Family Medicine. **Byron Crouse,**

M.D., director of the University of Minnesota-Duluth Department of Family Practice, received the Merit Award for furthering the ideals of family medicine through involvement with the MAFP. Finally, **Virginia Lupo, M.D.**, Hennepin County Medical Center, was given the President's Award for her contributions to family physicians who perform obstetrics.

Marc Swiontkowski, M.D., chair of the Orthopaedic Surgery Department of the University of Minnesota since 1997, was elected to the board of the American Board of Orthopaedic Surgery for a term ending in 2003.

Aspen Medical Group, St. Paul, named **Thomas Holets** its chief executive office, effective May 1, Aspen's 25th anniversary. Most recently, Holets was CEO of Lexington Clinic/PhyCor, a for-profit

200-provider multispecialty clinic in Lexington, Kentucky.

David C. Anderson, M.D., received the 1999 Stroke Awareness Professional Award from the Northland Affiliate of the American Heart Association at its first Stroke Awareness Awards Luncheon in May. Anderson, chief of neurology at Hennepin County Medical Center, was selected for notable achievements, leadership, and accomplishments furthering stroke awareness and treatment.

Researchers at the University of Minnesota will receive \$6 million from the National Institutes of Health to conduct research on therapies to heal damaged lungs. The NIH has designated the university as a Specialized Center of Research, one of seven such centers nationwide. Project investigators include **Peter Bitterman, M.D.**, professor of medicine; and **David Ingbar, M.D.**, professor of medicine and pediatrics. With several other university researchers, they investigate lung injury in both laboratory and clinical settings.

The University of Minnesota also received the American Association of Family Physicians' (AAFP) Gold Achievement Award for its outstanding production of graduates who enter family practice. Other AAFP honorees included **William Jacott, M.D.**, who received the F. Marian Bishop Leadership Award for his commitment to the discipline and his leadership roles in the American Medical Association and the Joint Commission on the Accreditation of Healthcare Organizations. In addition, **Carole Bland, Ph.D.**, received the Curtis G. Hames Research Award for contributions to the development of family medicine research, and **Patrick Keenan, M.D.**, and **Brenda Wilcox Abraham, M.D.**, received New Faculty Scholar awards. ■

New ULM, Minnesota

Seeking one BC/BE general orthopedist to join one other, spine and sports medicine interest a plus. The New ULM Medical Center has excellent PT/OT support staff, state-of-the-art rehab facilities, and athletic trainers that work with the local school system.

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Socioeconomics

St. Paul Infertility Clinic Helps Patients Hedge Bets in Vasectomy Reversals

Reproductive Medicine and Infertility Associates announced in April that it will help couples defray the cost of in vitro fertilization by crediting up to \$6,000 toward another fertility treatment if a vasectomy reversal doesn't result in pregnancy within a year. Vasectomy reversal costs about \$6,500. Douglas Schow, M.D., a urologist at the clinic, proposed the warranty because patients have limited money to spend on fertilization.

"Patients have told us that even though the success rate of vasectomy reversal is high, they are concerned about investing their money in the procedures, knowing that if they don't become pregnant, they'll have to try something else and won't be able to afford it," Schow said in a Minneapolis *Star Tribune* article. The success rate for impregnation after a reversal is about 50 percent.

Companies Help Cover Dental Care for Uninsured Kids

Delta Dental Plan of Minnesota, the Medtronic Foundation, and Snyder Drug Stores Inc. have together contributed \$120,000 to fund a three-year program to provide preventive dental care to about 850 uninsured children, primarily ages 1 year to 5 years. The Community-University Health Care Center/Variety Children's Clinic, in the Phillips neighborhood of south Minneapolis, will offer the service.

HCMC Gets Mixed News from State Legislature

The state Legislature's decision to allocate \$10 million to reimburse counties for the medical care their medical centers give indigent non-county residents amounts to a Pyrrhic victory for Hennepin County Medical Center (HCMC). According to the Minneapolis *Star Tribune*, HCMC had lobbied hardest for the tax bill.

HCMC Board Chair Randy Johnson had said in April he would propose that, in the absence of such a bill, HCMC restrict medical treatment for poor nonresidents to emergency care. Although Hennepin County expects to get about \$4.5

million as a result of the bill, other legislation requires the county to lower the property taxes it collects by the same amount of aid HCMC will receive.

HCMC Administrator Jeff Spartz was quoted in the *Star Tribune* as saying, "This is a wash, at best."

Johnson said he would probably pursue his proposal for providing only limited treatment.

According to the *Star Tribune*, in 1997 HCMC delivered 81 percent of all charity care in the state and carried 75 percent of all the bad debt accumulated among the state's public hospitals. And county officials estimate that the medical center will provide \$6.2 million in unreimbursed care this year to Minnesotans living outside Hennepin County. ■

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MRA-97-15735 Ed. 7/97



Research & Innovations

'U' Gets Grant to Study Risk of Oral-Genital HIV Transmission

The National Institute of Dental Research has given University of Minnesota researchers a nearly \$1 million grant to determine how HIV is transmitted, particularly through oral-genital contact. According to Timothy Schacker, M.D., lead investigator and assistant professor of medicine, "We have seen many individuals become infected with HIV through oral contact, which leads us to believe oral sex may be a higher-

risk activity than previously thought."

Subjects in the HIV study, which represents a collaboration of the university's School of Dentistry, School of Public Health, Program in Human Sexuality, and several medical school departments, will be couples in which only one partner has HIV. The research team, which also includes Keith Henry, M.D., Regions Hospital; Ron Shut, M.D., Hennepin County Medical Center; Leslie Bakken, M.D., Park Nicollet Clinic; and Frank Rhame, M.D., Abbott-Northwestern Hospital, will follow the couples for 24 months, monitoring dental health and activity that might be linked with a higher risk of transmission.

Mayo Finds Comparable Costs for Cancer Clinical Trials and Standard Treatment

A Mayo Clinic study published in the May 19, 1999, *Journal of the National Cancer Institute* found that

the costs for cancer clinical trials, were modestly higher—less than 10 percent—than the costs for treating patients who were eligible for the trials but chose standard treatment.

"The widely held view by third-party payers is that clinical trials are much more expensive than standard treatment," says Steve Alberts, M.D., Mayo Clinic oncologist and principal investigator in the study. "We now know that costs are not budget-breaking."

The study has already affected reimbursement as well as legislative policy. Mayo Health Plan, an HMO affiliated with Mayo Foundation, announced an agreement in September 1997 with several national cancer cooperative groups to cover patient care costs of treatment provided as part of NCI-approved trials. In addition, partly because of early information from the study, United Health-Care forged a similar agreement with the Coalition of National Cancer Cooperative Groups Inc. that went into effect last October. ■

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Rates, Trends & Data

Minnesota Has Highest and Lowest Teen Pregnancy Rates

Minnesota, the state with the nation's lowest white teen pregnancy rate, according to the Centers for Disease Control and Prevention, also has the highest African American teen pregnancy rate. In an article in the *St. Paul Pioneer Press*, Rosemarie Rodriguez-Hager cited racial and economic segregation, which translates into inadequate health care services and limited economic and social op-

portunities, as the main reason for the dichotomy. "If you have an option to go to college or work the next five years for something, you take precautions," said Rodriguez-Hager, project coordinator for the state Health Department's African-American Teen Pregnancy Project. An initiative by the department's Office of Minority Health is under way to establish community-based programs to address the problem.

Nationwide, the teen pregnancy rate has plunged 17 percent during this decade, reaching the lowest level since 1973. Reasons for the decline include more reliable contraception, AIDS fears, emphasis on abstinence, and perhaps the robust economy. ■

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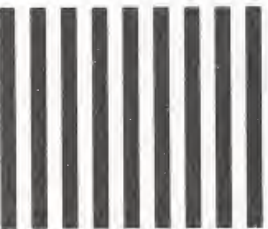
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	99 Ford Expedition XLT, 4WD, 4dr	\$34,020	\$30,249	\$516	\$430	\$392
Pickups	99 Chev, 1/2ton Extcab, LS, 4WD	28,625	\$26,300	\$503	\$408	\$359
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Twelve Years of Emergency Medicine at Hennepin County Medical Center

Changing Critical Care Experience

Douglas D. Brunette, M.D., F.A.C.E.P.

ABSTRACT

Objective: To elucidate the critical care experience of emergency medicine faculty and delineate changing patterns of practice.

Method: A retrospective review of the resuscitation room dictations for all patients treated in the emergency department resuscitation room by one emergency medicine physician from July 1, 1985, to June 30, 1997, was performed.

Results: A total of 1,325 cases were reviewed. The number of cases of arrhythmia ($p < 0.01$) and medical cardiac arrest ($p < 0.01$) significantly decreased over time, while the number of cases involving firearm injury ($p < 0.01$) increased. The percentage of trauma cases steadily rose from 38.5% in year 1 to 50.2% ($p < 0.01$) in year 12. Significant decreases in the rate of arterial line placement ($p < 0.01$), central line placement ($p < 0.01$), nasotracheal intubation ($p < 0.01$), and thoracotomy ($p < 0.05$) have occurred. Significant increases were seen in cardiac ultrasound examination ($p < 0.01$), rapid sequence induction for intubation ($p < 0.01$), and the use of paralytic medications ($p < 0.01$).

Conclusion: Significant changes have occurred in the type of case and rate of utilization of various diagnostic and therapeutic procedures.

A search of the Medline literature produces few articles on the amount and type of critical care delivered in emergency department (ED) settings.¹⁻⁸ Existing literature focuses on the length of stay of critically ill or injured patients in the emergency department as a result of hospital overcrowding and inability to immediately admit patients.^{2,3,5-8} Few studies detail the type of patient and the kind of procedure performed on critically ill patients.^{1,6-8} Several articles examine the type of critical care and procedures performed by residents during their emergency medicine training period, but I found no articles specific to an emergency medicine physician's critical care experience over time.⁹⁻¹²

This paper describes the type, nature, and scope of critical care experiences at an urban, academic emergency department over a prolonged period and examines changing patterns of critical care practice.

Materials and Methods

I performed a retrospective review of the resuscitation room dictations for all patients treated by the same emergency medicine physician in the emergency department (ED) resuscitation room at our institution from July 1, 1985, to June 30, 1997. The study was exempted by the Institutional Review Board at Hennepin County Medical Center. Our hospital is an urban, academic medical institution that has had an emergency medicine residency program since 1972. The annual patient census increased from 70,500 patients in 1985 to 85,516 patients in 1997, with the percentage

of critically ill increasing from 1.6% in 1985 to 2.1% in 1997. Patients are brought into the resuscitation room if their illness or injury presents an immediate life threat.

Throughout the study period the number of emergency medicine physicians on staff, their overall number of clinical hours, as well as the proportion of single-, double-, and triple-physician coverage during a 24-hour period, changed periodically. Despite these variations, physicians were assigned an equal proportion of type of shifts, such as days, evenings, nights, and weekends, as well as an equal proportion of shifts involving stabilization room coverage. One emergency medicine physician's clinical stabilization room experience was likely to be representative of the experience of all other such physicians.

All resuscitation room cases at our institution have a medical student present whose sole responsibility is to record the details of the case minute by minute using a standardized form. At the end of the case, nurses document all events on a resuscitation room flow chart using the medical student's recordings and their own recollection of events. The senior emergency medicine resident uses both the medical student's recordings and the nurses' resuscitation room flow sheet to dictate each case. The dictations are signed by the senior resident and staff physician, and the physician dictation and nurse flow sheet become part of the permanent medical record.

The demographic data abstracted were patient name, age, sex, and race. The clinical data collected in-

Table 1

Demographic data for all cases

Data	Medical	Trauma	Total
# Cases	759 (57.3%)	566 (42.7%)	1,325 (100%)
Mean age (years)	52.3	30.8	43.1
Mean age males (years)	52.4	30.2	41.7
Mean age females (years)	52.0	33.2	46.6
# Males	482 (63.5%)	454 (80.2%)	936 (70.6%)
# Females	277 (36.5%)	112 (19.8%)	389 (29.4%)
# Pediatric (<18)	48 (6.3%)	80 (14.1%)	128 (9.7%)
Mean pediatric age (years)	4.6	10.4	8.2

Table 2

The top 20 diagnoses for medical, trauma, and all resuscitation room cases, where (n) equals %. Multiple diagnoses can be given for any individual case.

Medical	Trauma	All
Hypotension (21%)	Closed head trauma (14%)	Hypotension (29%)
Arrhythmia (15%)	Motor vehicle accident (11%)	Mental status (16%)
Mental status (13%)	Stab wound (9%)	Arrhythmia (15%)
Cardiac arrest (13%)	Soft tissue injury (8%)	Closed head trauma (15%)
Respiratory distress (11%)	Orthopedic injury (8%)	Cardiac arrest (14%)
Overdose (7%)	Gunshot wound (7%)	Motor vehicle accident (11%)
Seizure (7%)	Hypotension (8%)	Respiratory distress (11%)
Pulmonary edema (5%)	Hit by car (5%)	Stab wound (9%)
Alcohol intoxication (4%)	Alcohol intoxication (4%)	Alcohol intoxication (8%)
Infection (4%)	Fall (3%)	Overdose (8%)
Myocardial infarction (4%)	Spine injury (3%)	Seizure (8%)
COPD (4%)	Mental status (3%)	Soft tissue injury (8%)
Pneumonia (4%)	Pelvic fracture (3%)	Orthopedic injury (8%)
Intracranial bleed (3%)	Pneumothorax (3%)	Gunshot wound (7%)
Gastrointestinal bleed (3%)	Hemoperitoneum (2%)	Pulmonary edema (5%)
Asthma (1%)	Aortic injury (2%)	Hit by vehicle (5%)
Heart failure (1%)	Assault (2%)	Myocardial infarction (4%)
Renal failure (1%)	Hemothorax (2%)	Infection (4%)
Aspiration (1%)	Cardiac arrest (2%)	COPD (4%)
Carbon monoxide (1%)	Burn (1%)	Fall (4%)

cluded date of event, initial vital signs, procedures and radiographs performed, diagnoses, time in resuscitation room, outcome, and disposition. All cases were classified as either medical or trauma.

Descriptive and summary statistics were used to analyze and group the data. Rates of procedures performed and type of case per 100 cases were compared for years 1–3 vs. 10–12. Data were analyzed using chi square, Fisher's exact, Student's *t*, and Mann-Whitney *U* tests of significance (Stat-View for Windows, version 5.0, SAS Institute Inc.). A year was defined as the academic calendar year, from July 1 through June 30.

Results

GENERAL DEMOGRAPHIC DATA

The ED managed 1,325 cases during the study period. Table 1 provides demographic data on medical, trauma, and total resuscitation room cases. There were 809 (61%) Caucasian, 278 (21%) African American, 121 (9%) Native American, 30 (2%) Asian, 8 (2%) Hispanic, and 59 (5%) unknown patients. The percentage of cases involving minority patients (non-Caucasian) increased from 28.2% for years 1–3 to 37.7% for years 10–12 ($p < 0.01$). For reference, the percentage of minorities in Hennepin County was 12.6% and 16.0% in years 1990 and 1996, respectively.¹³ The average age of patients decreased from 45.5 in years 1–3 to 41.1 in years 10–12 ($p = 0.01$). The average age of

Table 3

Rate of occurrence per 100 cases by trauma mechanism. Years 1–3 vs. 10–12

Trauma Mechanism	Years 1–3	Years 10–12	Significance Level
Gunshot wounds	5.0	11.5	$p < 0.01$
Motor vehicle accident	14.9	20.2	$p = 0.06$
Stab wounds	7.8	7.4	$p = 0.84$
Hit by vehicle	6.0	4.0	$p = 1.38$
Falls	4.5	3.7	$p = 0.29$

Table 4

Rate of occurrence per 100 resuscitation room cases in the leading diagnosis for medical cases. Years 1–3 and 10–12

Diagnosis	Years 1–3	Years 10–12	Significance Level
Cardiac arrest	17.8	6.0	$p < 0.01$
Arrhythmia	19.4	9.4	$p < 0.01$
Hypotension	15.1	12.1	$p = 0.26$
Respiratory distress	11.1	9.1	$p = 0.39$
Altered mental status	10.6	15.8	$p < 0.05$
Overdose	7.6	7.1	$p = 0.81$
Seizure	6.6	7.4	$p = 0.66$

gunshot wound patients decreased from 31.5 in years 1–3 to 25.5 in years 10–12 ($p < 0.05$), while the average age of motor vehicle accident patients did not change significantly. The ratio of male to female patients did not change significantly from years 1–3 to 10–12.

GENERAL CASE DATA

The average length of cases was 36.0 minutes for trauma, and 38.6 minutes for medical cases ($p = 0.05$). The average length of cases for trauma patients discharged from the resuscitation room to the operating room was 27.1 minutes ($p < 0.01$). Patients were discharged from the resuscitation room to the intensive care unit (47%), CT scan (25%), morgue (9%), operating room (8%), floor bed (4%),

angiography (2%), main ED bed (2%), and to other or unknown (3%). Three hundred fifty-four (26.7%) cases took place on eight-hour shifts during which more than one resuscitation room case occurred, while 971 (73.3%) cases took place on shifts during which only one resuscitation room case occurred. The most resuscitation room cases occurring on one eight-hour shift was eight. The death rate for years 1–3 was 12.9 deaths per 100 cases, a rate that decreased to 3.0 deaths per 100 cases for years 10–12 ($p < 0.01$). The medical cardiac arrest rate decreased from 17.8% during years 1–3 to 6.0% for years 10–12 ($p < 0.01$).

Twenty-seven (2%) patients had two separate visits to the resuscitation room, and 3 (0.2%) patients

were managed in the resuscitation room on three different occasions.

DIAGNOSTIC DATA

There were 759 medical cases and 566 trauma cases. Table 2 lists the leading 20 diagnoses. The percentage of resuscitation cases involving trauma steadily rose from 38.5% in year 1 to 50.2% in year 12 ($p < 0.01$). The change in the ratio of trauma to medical resuscitation room cases was due to increases in the number of motor vehicle accident and gunshot wound cases, and a decrease in the number of cases involving arrhythmia and cardiac arrest (see Tables 3 and 4).

PROCEDURAL DATA

Table 5 lists the totals of all procedures performed and their rate of performance per 100 resuscitation room cases. Procedures performed in more than 40% of the cases include chest x-ray (77%), arterial blood gas analysis (54.9%), Foley catheter (53.7%), peripheral venous catheter (52.8%), and endotracheal intubation (40.9%).

Table 6 compares the rate of performance for procedures in years 1–3 with the rate in years 10–12. A substantial decrease in the rate of performance per 100 cases occurred for abdominal radiographs, arterial blood gas analysis, nasotracheal intubation, central venous catheters, arterial catheters, gastric lavage, defibrillation, diagnostic peritoneal lavage, thoracotomy, and cricothyrotomy. Ultrasound examination, conscious sedation, use of paralytic agents, rapid sequence intubation, and thrombolytic administration showed substantial increases.

Discussion

Substantial changes have occurred in the demographic profile, type of case, outcome, and practice in the delivery of critical care to resuscitation room patients at Hennepin County Medical Center. The reasons for these changes are likely multifactorial.

The decreasing age for resuscitation room patients appears to be due to the increasing proportion of trauma cases, particularly gunshot wounds and motor vehicle accidents.

Table 5

Individual procedures by frequency; (n) = rate per 100 cases

Procedure	Number	Procedure	Number
Radiographs	1,826	Arterial catheter	111 (8.4)
Chest	1,025 (77)	Percutaneous	76 (5.7)
Cervical	376 (28.4)	Surgical	35 (2.6)
Pelvis	214 (16.2)	Gastric lavage	104 (7.8)
Other	116 (8.8)	Rapid sequence induction	87 (6.6)
Abdominal	48 (3.6)	Defibrillation	86 (6.5)
Thoracic/lumbar	47 (3.5)	External	63 (4.7)
Arterial blood gases	727 (54.9)	Internal	23 (1.7)
Foley catheter	712 (53.7)	Peritoneal lavage	64 (4.8)
Peripheral IV	699 (52.8)	Closed	54 (4.1)
Tracheal intubation	542 (40.9)	Open	10 (0.8)
Nasotracheal intubation	282 (21.3)	Chest tube	56 (4.2)
Orotacheal intubation	260 (19.6)	Thoracotomy	43 (3.2)
Ultrasound examination	519 (39.2)	Splinting extremity	32 (2.4)
Cardiac	375 (28.3)	Cystogram	30 (2.3)
Abdominal	141 (10.6)	Cardiac pacing	27 (2.0)
Electrocardiogram	517 (39.0)	External	25 (1.9)
Gastric tube	422 (31.8)	Epicardial	2 (0.2)
Central venous catheter	322 (24.3)	Cricothyrotomy	17 (1.3)
Intraclavicular	189 (14.3)	Thrombolytic administration	17 (1.3)
Supraclavicular	102 (7.7)	Burn treatment	13 (1.0)
Femoral	18 (1.4)	Fiberoptic intubation	13 (1.0)
Jugular	13 (1.0)	Laryngoscopy/bronchoscopy	12 (0.9)
Sedation of patient	276 (20.8)	Pericardiocentesis	11 (0.8)
Paralytic medication	152 (11.5)	All other procedures	<10 (0.8)

The average age in both groups decreased significantly during this study.

The number of minority (non-Caucasian) stabilization room patients increased significantly over the study period partly because of an increase in the minority population in Hennepin County.

The rate of occurrence of medical cardiac arrests and cardiac arrhythmias fell substantially. Potential explanations for this decrease are a growing number of Do Not Resuscitate (DNR) and Do Not Intubate (DNI) directives for older patients,¹⁴⁻¹⁷

an increase in the number of patients pronounced dead before arriving at the hospital, and the wider distribution of both automated external defibrillator devices for first responders¹⁸⁻²⁰ and automatic implanted cardiac devices.²¹⁻²³

The increase in gunshot wounds and motor vehicle accidents raised the overall number and proportion of trauma cases.

Notably, the time required for trauma cases was significantly shorter, particularly in those trauma cases that resulted in a patient's going di-

rectly to the operating room from the ED stabilization room. This is consistent with the notion of the "Golden Hour" of initial trauma care.

The death rate decreased 76% from years 1-3 to years 10-12, which at first glance is rewarding data. However, the number of patients presenting in medical cardiac arrest decreased by 66%. Given the high eventual death rate for patients presenting in medical cardiac arrest, it is not surprising that the overall death rate decreased.

Greater use of ED ultrasound brought about changes in practice patterns. Decreases in the rate of central venous catheterization and diagnostic peritoneal lavage have occurred. Echocardiography obviated central venous catheter placement when considering the diagnoses of penetrating cardiac injury^{24,25} and nontraumatic tamponade and decreased the utilization of diagnostic peritoneal lavage in trauma.²⁶ Echocardiography was increasingly used for examining the contractile state of the heart and reduced the need to place a central venous catheter to determine central venous pressure when managing conditions such as sepsis,²⁷ cardiac shock,²⁸ and traumatic hypovolemia.²⁹ Central venous catheterization rates also decreased because of improvements in peripheral venous line equipment and

techniques, increased use of thrombolytic agents and avoidance of their bleeding complications,³⁰ and increased reliance on transcutaneous rather than transvenous cardiac pacing.³¹⁻³³

Placing arterial catheters and obtaining arterial blood gases have decreased because of greater reliance on noninvasive monitoring measures such as percutaneous oxygen saturation, automated peripheral blood pressure cuffs, and expired pCO₂ measurements.³⁴ The drop in the number of patients with cardiac arrest

and arrhythmia has contributed to the decrease in invasive monitoring procedures and defibrillation.

The rate of performance for thoracotomy and cricothyrotomy has substantially decreased. ED thoracotomy has evolved to the point where its benefits outweigh the risks and costs only when performed on patients with penetrating thoracic injury.³⁵⁻³⁷ Cricothyrotomy, though never a common procedure, has become very uncommon.^{38,39} Improvements in airway management, such as fiberoptic intubation, Siker laryngoscope blade, lighted stylet intubation, transtracheal needle ventilation, gum bougie device, retrograde intubation, and combitube have all reduced the need for cricothyrotomy. The two most significant reasons for the decrease in cricothyrotomy rate are the increased use of rapid sequence induction and paralytic agents,⁴⁰ and the use of orotracheal intubation with in-line immobilization for patients with suspected cervical spine injury, as advocated by the Advanced Trauma Life Support Course since 1984.⁴¹

Several other changes in airway management have taken place. The overall rate of endotracheal intubation by any method fell from 48% to 34%. It is possible that the patients brought into the resuscitation room have gradually consisted of a "less sick" population. It is also possible that alternative therapy, such as the use of heliox for asthma, has been used to correct airway and ventilation problems. The most likely explanation, however, is the growing proportion of trauma cases. Trauma cases had an overall intubation rate of 24.9% by any method, while medical cases had a rate of 56.3%. Since the number of trauma cases increased over time relative to the number of medical cases, the decrease in the number of tracheal intubations is not surprising.

The rate of nasotracheal intubation has decreased substantially, with a small increase in the number of orotracheal intubations. This is in keeping with the recent belief that orotracheal intubation with in-line immobilization in patients with potential cervical spine injury is safe.⁴² Before, many trauma patients requir-

Table 6

Rate of performance of procedures per 100 cases. Years 1-3 and years 10-12.

Procedure	Years 1-3	Years 10-12	Significance Level
Radiographs			
Chest	75.6	79.5	p = 0.22
Cervical	29.7	29.3	p = 0.9
Pelvis	14.3	19.5	p = 0.07
Other	11.8	6.7	p < 0.05
Abdominal	6.8	2.4	p < 0.01
Thoracic/lumbar	4.8	2.4	p = 0.1
Arterial blood gases	67.3	31.3	p < 0.01
Foley catheter	57.7	46.8	p < 0.01
Peripheral IV	45.8	62.0	p < 0.01
Tracheal intubation	47.9	34.3	p < 0.01
Nasotracheal intubation	27.2	11.4	p < 0.01
Orotracheal intubation	20.7	22.9	p = 0.48
Ultrasound examination			
Cardiac	12.3	47.8	p < 0.01
Abdominal	0	36.7	p < 0.01
Electrocardiogram	42.8	31.3	p < 0.01
Gastric tube	34.3	24.6	p < 0.01
Central venous catheter	37.3	8.4	p < 0.01
Paralytic medication	7.6	23.9	p < 0.01
Arterial catheter	15.1	2.7	p < 0.01
Gastric lavage	9.6	4.0	p < 0.01
Rapid sequence induction	0.3	20.2	p < 0.01
Defibrillation	9.8	3.0	p < 0.01
Peritoneal lavage	6.5	3.0	p < 0.05
Chest tube	3.8	3.4	p = 0.08
Thoracotomy	4.0	1.0	p < 0.05
Cystogram	2.5	3.0	p = 0.68
Cardiac pacing external	4.3	1.3	p < 0.05
Cricothyrotomy	1.3	0	p = 0.05
Thrombolytic administration	0	2.4	p < 0.01
Burn treatment	0.8	2.0	p = 0.15
Laryngoscopy/bronchoscopy	0	2.7	p < 0.01
Pericardiocentesis	1.0	1.0	p = 0.99

ing endotracheal intubation were nasally intubated. The wider acceptance of orotracheal intubation for trauma led to more use of rapid sequence induction and intubation in

the emergency department.⁴³⁻⁴⁵

The use of thrombolytics has grown since their advent, and the notion that "time is muscle" has become a driving point for their rapid

administration in the ED.⁴⁶⁻⁴⁸

This study has a number of limitations. Because it is a retrospective review, it has fixed and expected deficiencies. The data from this study were not obtained by a random sampling of resuscitation room cases performed at HCMC by different staff physicians. All cases were performed by one physician, and therefore may not be representative of all resuscitation room cases at our institution.

Finally, some invasive procedures have become distinctly uncommon to perform. When needed and indicated, these procedures can be life-saving. It is important for the emergency medicine physician to remain well-versed in the performance of these infrequently needed procedures. This can and should be done in a variety of ways, such as using mannequin and animal procedural labs.⁴⁹⁻⁵²

The practice of emergency medicine is constantly changing. Emergency medicine physicians need to keep abreast of the medical literature, identify improved equipment and techniques, and modify their practice accordingly. Likewise, physicians and hospitals must identify changing patterns of critical care experience, such as demographic changes in patient population, to better serve and care for patients. **MM**

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Implementation of a Subregional Trauma System

In the absence of a formal, statewide trauma system that would help providers make decisions about where to transport patients with severe injuries, hospitals in the eastern Twin Cities region have put into a place a voluntary, patient-centered system.

Ralph J. Frascone, M.D., F.A.C.E.P., and Terry Gisch, B.A., NREMT-P

A limited number of medical facilities are able to provide the necessary resources for all injured patients in all situations, and it is not fiscally possible for all facilities to do so. Further, the majority of trauma patients do not have severe or life-threatening injuries that require the resources of a trauma center; most can be appropriately cared for by any hospital. For these reasons, it is important to develop trauma systems, rather than simply trauma centers.

The Centers for Disease Control and Prevention's *Position Paper on Trauma Care Systems* first described an inclusive trauma system. The Model Trauma Care System Plan refined the concept. Written in 1992 under the auspices of the Health Resources Services Administration, this plan outlines the basic components of a trauma system (see Table 1, page 51) and has served as a template for many new trauma systems in the United States. According to a resource book published by the American College of Surgeons, "The plan establishes a system that is fully integrated into the emergency medical service (EMS) system and strives to meet the needs of all injured patients requiring an acute care facility, regardless of severity of injury, geographic location, or population density. The trauma center remains a key component, but the system recognizes the necessity of other health care facilities. The goal is to match a facility's resources with a patient's needs

so that optimal and cost-effective care is achieved."¹

A trauma system must identify the capabilities of all medical facilities in a region and establish triage guidelines to assist prehospital and in-hospital providers in making decisions about which patients should be given immediate trauma center care and which may be treated appropriately at other facilities. To date, 33 states have some sort of formal trauma system (see Figure 1, below). Despite many efforts, a trauma system has not yet been implemented in Minnesota.

The endeavor to establish such a system in Minnesota began in the late 1980s and included four task forces

supported by federal grants. When the grant money abruptly ended in 1994, so did the efforts. It remains unclear whether a statewide trauma system will ever be implemented in Minnesota.

A Trauma System in the Twin Cities

In the Twin Cities, nine east-metropolitan hospitals (Fairview Lakes Regional Medical Center, Fairview Ridges Hospital, Lakeview Hospital, Regina Medical Center, Regions Hospital, HealthEast-St. John's Hospital, HealthEast-St. Joseph's Hospital, St. Paul Children's Hospital,

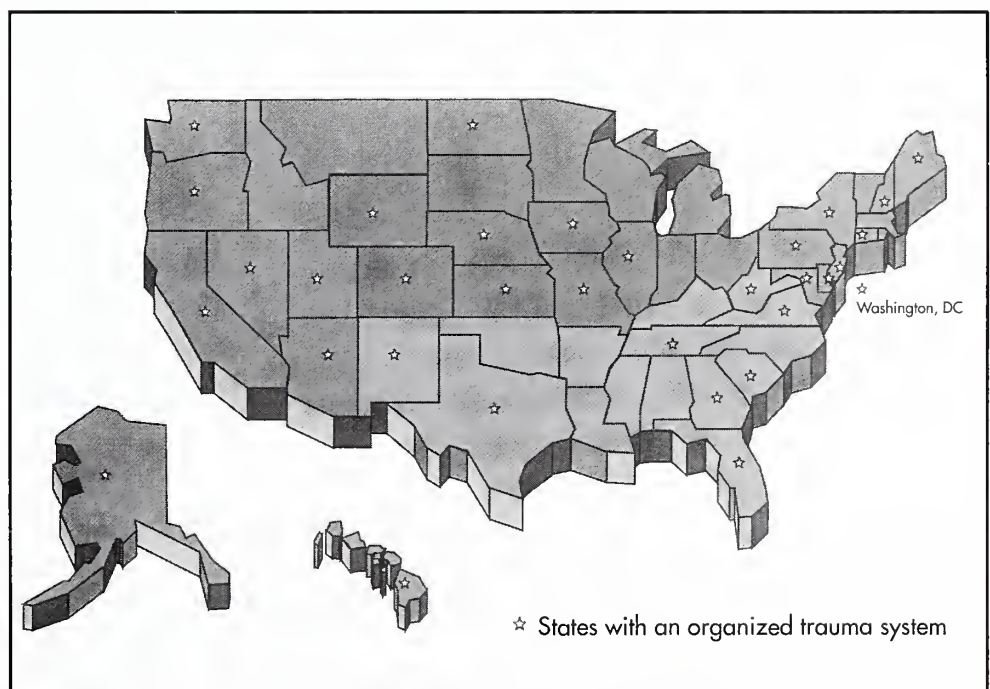


Figure 1—Status of trauma systems, 1998 (Robert Bass, M.D.)

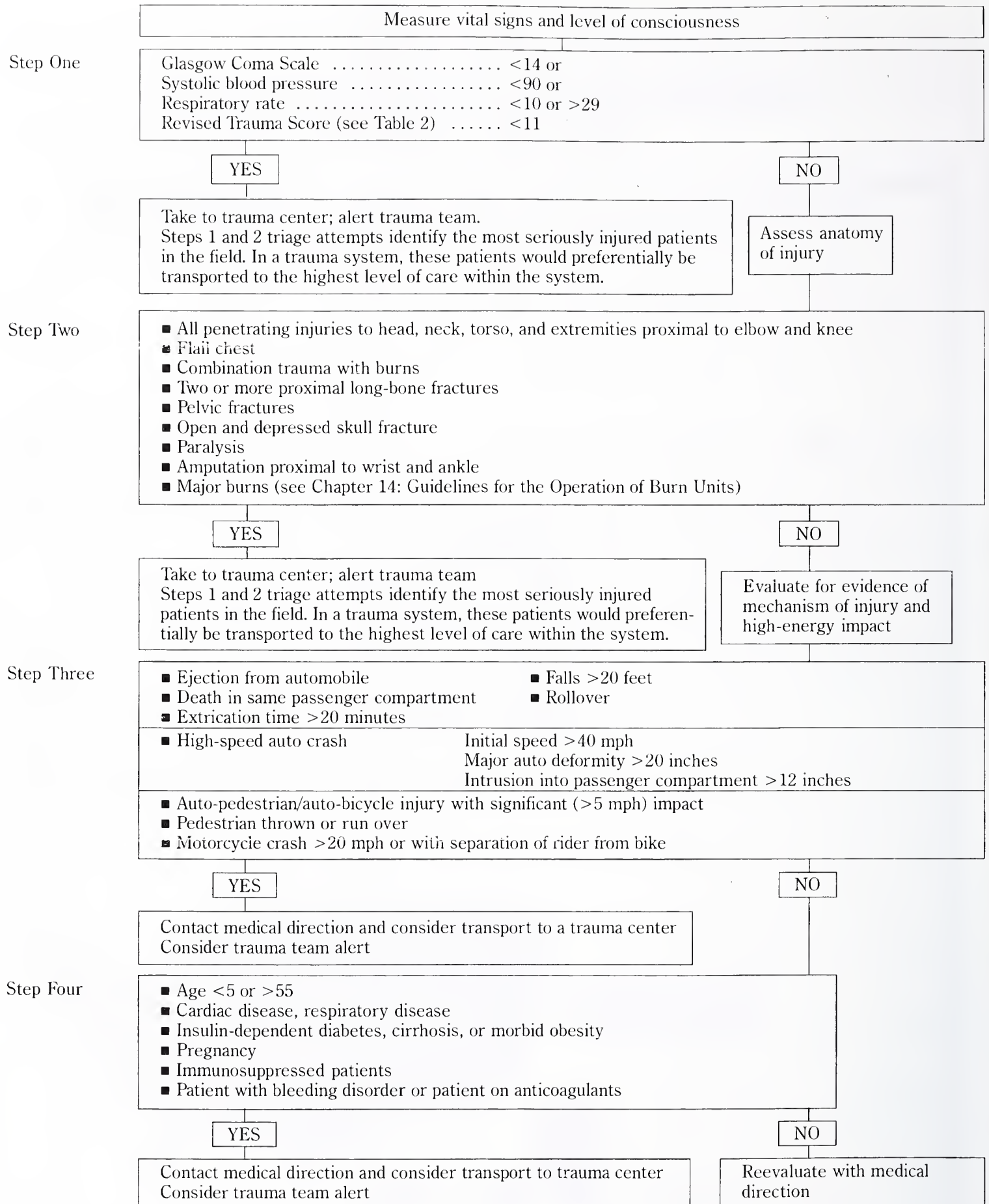


Figure 2—Field Triage Decision Scheme, 1998 (Robert Bass, M.D.). From Resources for Optimal Care of the Injured Patient, © 1999, American College of Emergency Physicians.

Table 1

Structure of a trauma system**Administrative Components**

Leadership
System development
Legislation
Finances

Operational and Clinical Components

Injury prevention and control
Human resources
 Work force resources
 Education
Prehospital care
 Emergency medical services management agency
 Ambulance and nontransporting guidelines
 Communications system
 Emergency/disaster preparedness plan
Definitive care facilities
 Trauma care facilities
 Interfacility transfer
 Medical rehabilitation
Information systems
Evaluation
Research

From *Resources for Optimal Care of the Injured Patient*, © 1999, American College of Emergency Physicians.

and United Hospital) recognized the need for a trauma system. Misunderstandings among EMS personnel about the capabilities of each hospital continued to surface. The East Metro Prehospital Advisory Committee coordinated the project. This committee consists of the chairs of the emergency departments of the east metro hospitals, who meet quarterly to discuss regional prehospital issues.

The first step in the process of developing a subregional trauma system was to clarify the capabilities of the east metro hospitals. The committee agreed that all the hospitals are capable of evaluating and treating the majority of injured patients, but that certain types of patients should be transported to a trauma

Table 2

East Metro Guideline: Disposition of Critically Injured Trauma Patients***Presentations, injuries, or mechanisms of injury in any age that are appropriately treated at a trauma center:**

- Profound shock (blood pressure less than 90 mmHg systolic [adult] with or without a pneumatic antishock garment in place)
- Persistent posttraumatic unconsciousness without improvement during the time of prehospital observation
- Neurologic injuries consisting of skull fractures (open or depressed), decerebrate or decorticate posturing, or limb paralysis
- Penetrating trauma to the head, neck, or torso
- Severe burns, or a combination of trauma with burns of 10% or inhalation injuries
- Partial or complete amputations above the wrist or ankle
- Profound hypothermia
- Flail chest
- Traumatic airway compromise
- Pelvic instability
- Two or more proximal long bone (femur or humerus) fractures
- Traumatic cardiac arrest
- Ejection from vehicle
- Death in the same patient compartment
- Extrication time > 20 minutes
- Falls from > 20 feet
- High-speed rollover

Patients of any age with mechanisms of injury that place them at higher risk for critical injuries and who should be considered for transport to a trauma center:

- Evidence of high speed (> 40 mph): vehicle deformity > 20 inches and/or intrusion of >12 inches into patient compartment
- Auto vs. pedestrian or auto vs. bike collision with significant impact
- Pedestrian thrown or run over
- Motorcycle crash >20 mph and/or separation of rider from bike

Prehospital personnel are encouraged to contact medical control for patients who do not fall clearly into the above categories.

* **The East Metro Guideline differs from ACS guidelines in the following ways:** "High speed" was added to "rollover." "> 5 mph" was removed from the description of "significant" in describing the impact of an auto vs. pedestrian or auto vs. bike collision. "Extremities proximal to elbow and knee" was removed from penetrating injuries.

center. In the eastern metropolitan area, Regions Hospital in St. Paul is the verified Level One Trauma Center and serves as the "lead hospital" for the trauma system.

The second step was for the committee, in conjunction with the hos-

pitals' senior administration, to draft trauma system guidelines, using as a template the American College of Surgeons (ACS) Committee on Trauma's "Field Triage Decision Scheme" (Figure 2). In October 1998, the committee issued a guideline to am-

balance personnel entitled "Disposition of Critically Injured Trauma Patients" (Table 2), which delineates the appropriate destination for two categories of patients: those who should go to a trauma center and those who should be *considered* for

transport to a trauma center. Medical Control operators and physicians and EMS personnel use this guideline when making transport destination decisions.

The committee's third step was to educate the ambulance agencies

about the new protocol. The fourth and final step will be to collect data about the system's effectiveness. A data collection system, while not complete, does exist within Regions Hospital's trauma registry.

We believe that this effort represents the state's first formalized trauma system. It is a completely voluntary, patient-centered system. While not perfect, it may have to suffice until a true state trauma system is implemented. We believe that it could serve as a model for others in the state who find themselves with the same need and who wish to organize a trauma system locally or regionally.

MM

Ralph Frascione is the medical director at Regions Hospital EMS and Terry Gisch is the EMS quality adviser at Regions Hospital EMS. Please feel free to contact either author with questions at 651/778-0398. The system guideline is available in its entirety on the Regions Hospital EMS home page: www.regionsems.net.

REFERENCE

1. American College of Surgeons Committee on Trauma. Resources for optimal care of the injured patient. Chicago: American College of Surgeons, 1999:5.

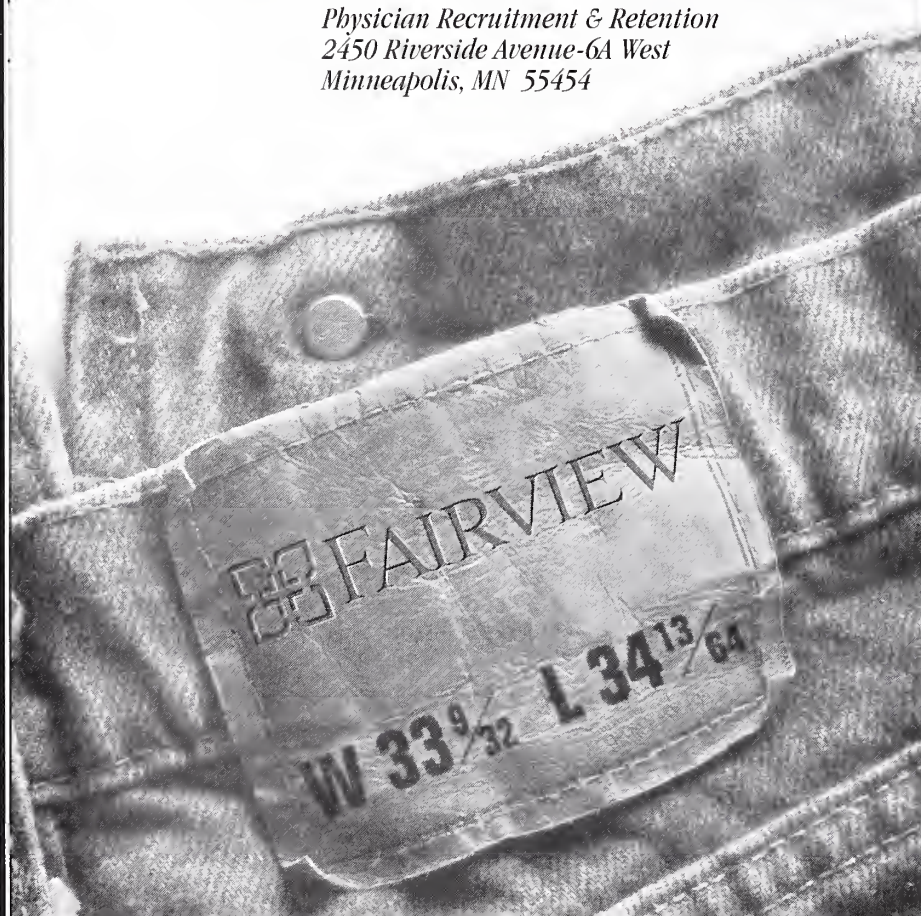
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FILM ROUGE



HOLLYWOOD BOOK AND POSTER

Blood's metaphorical associations make it a natural subject for literature and films, as in the classic vampire stories.

JON HALLBERG, M.D.

When I was in the eighth grade, my biology class watched an educational film called "Hemo the Magnificent." This film, one in a series produced by the Bell Labs in the 1950s or 1960s, had a dated look even when I saw it in the late '70s. Nevertheless, it captivated us. With the help of animation and two human narrators, it told the fascinating story of blood. The film began with the basic question, "What is blood?" The answer was deceptively simple: seawater. The news that our blood was composed largely of saline came as a surprise to me and my classmates—until then, our most heated blood-related argument had been, "Is it red or is it blue?"

Blood's components, including red and white blood cells, platelets, and antibodies, really came to life for me in the 1966 sci-fi thriller "Fantastic Voyage," starring Raquel Welch. In this entertaining film, a medical team is reduced to microscopic size and injected into a diplomat's bloodstream to destroy a blood clot in his brain (1960s TPA!). The film, though campy, does highlight a paradox of blood: its presence is life, while its absence is death. Blood is literal and it is a metaphor. It is both real and the stuff of fantasy. It has worked its way into our vocabulary with such expressions as bloodbath, cold-blooded, and bloodthirsty. It is no surprise that blood's turbulent flow through culture and the arts has a long history. One of the most fascinating examples of the blood theme is the vampire myth.

When we think of vampires, most of us visualize one image—Dracula, or, more specifically, Bela Lugosi, the Hungarian actor who immortalized the role in the 1931 Universal Pictures film. His skin is white, his gaze mesmerizing, his accent thick. He is, save for his taste for human blood, a gentleman. Lugosi's Count Dracula stands in stark contrast to the historical figure upon whom he is based, Vlad Tepes, or Vlad the Impaler. Vlad lived from 1431 to 1476 in what is now Romania. His father was given the name Dracul—which means "dragon"—by the Holy Roman Emperor for his valor in fighting the Turks. The young Dracula was described by one of his contemporaries as follows:

He was not very tall, but very stocky and strong, with a cold and terrible appearance, a strong and aquiline nose, swollen nostrils, a thin reddish face in which very long eyelashes framed large wide-open green eyes: the bushy black eyebrows made them appear threatening. His face and chin were shaven, but for a moustache. The swollen temples increased the bulk of his head. A bull's neck connected the head to his body from which black curly locks hung on his wide-shouldered person.

Vlad Tepes ruled with a bloody fist, impaling petty criminals and enemies with abandon. His un-Lugosi-like appearance and savagery are well-portrayed in Francis

Ford Coppola's 1992 film "Bram Stoker's Dracula." This sumptuous movie melds historic detail with gothic romance in a work in which blood flows literally and figuratively.

Despite the carnage, Vlad was not considered a vampire during his lifetime. The legend may have begun when it was rumored that his corpse had been decapitated. (The head was said to have been perfumed, wrapped, and sent to the Turkish sultan as a gift.) When Vlad's supposed tomb in the monastery of Snagov was opened in 1935, the corpse was indeed headless.

Bram Stoker, an Irishman, wrote the classic novel "Dracula" in 1897. Although he may have been inspired by Mary Shelley's 1818 novel "Frankenstein," Stoker's book probably had its roots in the folklore of Eastern Europe and such books as "The Vampire" (1819) and "Varney the Vampire: or, the Feast of Blood" (1847). Perhaps Stoker also knew the story of Countess Elizabeth Bathory of Hungary, known as the Blood Countess because of her propensity for bathing in virgins' blood in her quest for eternal youth. Andrei Codrescu, an NPR commentator and a native of Transylvania, Romania, wrote a novel about Bathory in 1995.

Three theories about how the centuries-old vampire stories may have originated are medically relevant. The first involves tuberculosis, or, as it was once known, consumption. Untreated, it can be seen as a wasting disease in which the victim slowly wastes away or is "consumed" from within. Because TB thrives on proximity and poverty, rural and urban families alike were often struck, though not all members manifested symptoms simultaneously. After the death of one family member, others became ill, as though the deceased were striking from the grave.

Vampires and their blood-drained victims have always been characterized as pale, and anemia does occur in a significant minority of patients with tuberculosis. This condition is thought to result from either bone marrow suppression or a decrease in erythropoietin production. Occasionally, the anemia is caused by hemoptysis.

Those stricken with consumption sometimes exhumed the deceased in an attempt to stop the presumed attacks. Imagine their horror if the pale corpse was still fairly well preserved and blood stained the mouth. (This phenomenon has been attributed to postmortem diaphragmatic spasm.) It takes little imagination to understand why decapitating the "vampire" and driving a wooden stake through his or her heart were considered necessary.

The second theory holds that "vampires" may have had congenital erythropoietic porphyria. Because porphyrins help form heme rings, red blood cell production depends on them. In a person with erythropoietic porphyria, however, erythrocytes are prematurely destroyed because of an inherited disorder of porphyrin metabo-

lism. The condition is characterized by erythrodontia (the teeth exhibit a strong red fluorescence under ultraviolet light), cutaneous photosensitivity (leading to mutilating skin lesions), hemolytic anemia, splenomegaly, and hypertrichosis (a detail cleverly worked into Coppola's film). The only portrayal of actual porphyria in the arts is in the play and movie "The Madness of King George," about England's King George III, who had just lost the colonies when he was beset with "madness." Some historians hypothesize that he suffered from acute intermittent porphyria. In this form of porphyria, the liver is affected rather than the erythrocytes, and the victim's skin is not typically photosensitive. The condition is characterized by intermittent abdominal pain and neurologic disturbances.

The final theory holds that several characteristics attributed to vampires, including frothing at the mouth, hypersexuality, and an intense reaction to light, are symptoms of rabies. Indeed, a rabies epidemic struck rural Hungary in the 18th century and spread across Europe, just as the vampire myth was spreading.

That a relatively obscure myth from Eastern Europe should be such a big part of Western culture is a testament to Stoker's imagination. But it is blood, the essence of the story, that has most captured our imagination. Perhaps it is because, as Count Dracula states, "Blood is life." **MM**

Jon Hallberg is a physician at the Fairview Nicollet Mall Clinic and is working on a screenplay about TB. His Medicine & the Arts column appears periodically in Minnesota Medicine.

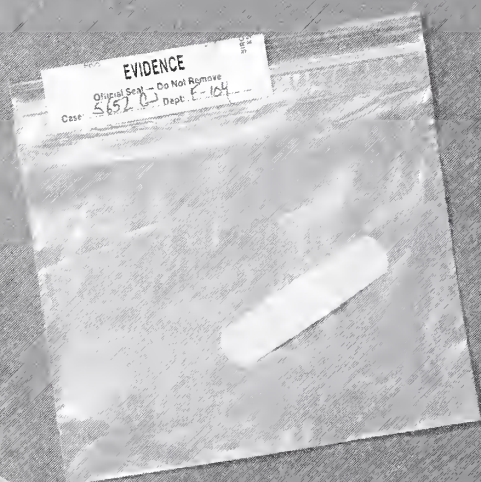


Exhibit A:

Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.

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DR. WHO? continued from page 12

Patients cannot expect this kind of devotion, but when it is there, we notice.

If the news a patient and physician are exchanging is the worst kind, there are no easy rules to follow. No medical school can truly prepare doctors to deliver death sentences because death—and its surrounding circumstances—is experienced differently by each patient and family. Treading on coals, a physician tells one family what may be entirely inappropriate to tell another.

After Lily C., who was also my husband's doctor, told me last May that my husband was going to die very soon, we sat down opposite each other in two chairs in his hospital room. I grabbed her hand and she held mine.

"I didn't want to do this." Lily's green eyes filled but didn't quite spill over until the two of us reached for the box of Kleenex.

I knew why Lily didn't want to cry. She hadn't planned to become so involved. But after years of knowing each other, and particularly during the intense 18 months before my husband's death, she and I were way past professional objectivity. She treated my husband, David, from well before the time of his initial cancer diagnosis until he died. Initially, we had cause for optimism, but David deteriorated rapidly. Lily walked that hard journey with the two of us, guiding us with compassion and frank realism.

Together, Lily and David and I talked a lot about the truths of his cancer. And throughout that time she also observed me carefully. She urged me into her office for checkups when I was worn down, not taking no for an answer, even calling me at home to make sure I had an appointment.

Now, though Lily refers to my chart when we talk in her office, I know I am more than the contents of those thick medical records. And she is more than a doctor in a white coat. I am Liz and she is Lily and we are friends. And when she visits me in the hospital with deep rings under her eyes, I worry that she is overdoing it. I don't want her to be sick. I want her to take care of herself.

No Longer Just a Belly to Carve

Before Evan J. operates on me again, I have gained personal knowledge about him that most other patients don't have about their surgeons. I know he was scared before his first endoscopy. And though he certainly never planned to see me in that hospital lounge, I don't think he regrets telling me. Now we share a bit of private knowledge. And when we are required to transact medical business, I'm no longer just a belly for Evan to carve. And Evan isn't just Dr. God in a green jacket and cap wielding a scalpel.

A patient is expected to trust her physician as a professional, but there's a person inside that white office coat or surgical jacket, a person with family stresses and job burnout and all the rest. When this human side of doctors is revealed to patients, their relationship becomes more real and natural, mutual and trusting.

It isn't only patients who need to be taken care of. When physicians go to extraordinary lengths for their patients, sometimes at great emotional cost to themselves, sometimes exhausted and with small children to raise, we patients notice. And we worry. And above all, we care.


MM

Elizabeth Bryan is principal recruiter for the Minnesota Center for Twin and Family Research in the Department of Psychology at the University of Minnesota.

**All names but the author's and her husband's have been changed.*

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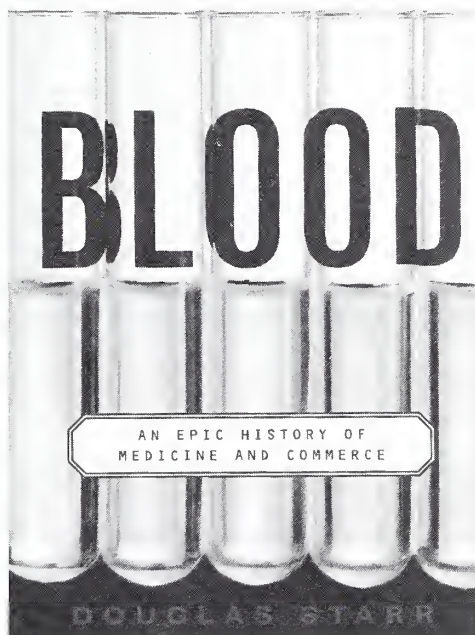
Blood Stories

Douglas Starr's "epic history" of blood is a compendium of fascinating tales.

Reviewed by Charles R. Meyer, M.D.

Blood is the stuff of stories. The language and lure of blood—blood brothers, blood ties, blood-sucking vampires, bloody battles, blood on one's hands—is grist for fictional creations and historical narratives. Historian Douglas Starr has found fascinating tales in the history of blood itself. In "Blood: An Epic History of Medicine and Commerce" (Knopf, 1998), Starr chronicles the saga of blood, from Harvey to AIDS.

Starr tells intriguing story after intriguing story, including that of the first recorded transfusion, in 1667: Jean-Baptiste Denis, Louis XIV's physician, used a steel tube to transfuse calf's blood into an arm vein of one of his patients, Antoine Mauroy, who suffered from fits of mania. After two apparent remissions induced by "cleansing" the patient of evil humors, Denis refused to transfuse Mauroy a third time, and the patient died shortly thereafter. Starr speculates that the transfusions led to temporary "cures" because the mismatched blood induced a high fever, which is recognized as a transient palliative in a patient with syphilitic mania. In 1908, French researcher Alexis Carrel performed an equally dramatic surgical adventure when he connected a father's radial artery to his infant's popliteal vein to transfuse the baby. A descendent of this procedure, direct transfusion using a cannula, was the preferred method for transfusion during the first decades of this century.



Starr also recounts landmark scientific discoveries. In 1900, Karl Landsteiner delineated the ABO blood-typing system, which eliminated the previously mysterious reactions that had plagued up to half the transfusions in that era. Although Landsteiner's work won him the Nobel Prize, it remained unutilized until 12 years later, when Reuben Ottenberg performed the first transfusion using blood typing. Even with the knowledge of blood typing, blood was still a nonstorable commodity—for the first 25 years of transfusion therapy, donors had to be physically close to the recipients. In 1915, Richard Lewisohn discovered that low levels of sodium citrate would keep blood from clotting, and transfusion was no longer a race against time.

War also advanced the science of blood banking. During the Spanish Civil War, Canadian surgeon Norman Bethune had the idea of bringing blood to the battlefield in bottles rather than "on the hoof." Just in time for World War II, John Elliott, laboratory chief at North Carolina's Rowan Hospital, discovered the value of transfusing plasma—which had a longer shelf life and fewer compatibility problems than whole blood—and private industry was enlisted to gear up plasma production. In 1940, Edwin Cohn's fractionation of plasma into albumin led to a secret government effort to churn out albumin for the front lines. Mirroring the biases of American society, the donor's race was noted on each unit of blood, and African American blood was excluded from the pool that produced albumin.

Long before O.J., blood played a pivotal role in legal cases. Cases of switched-at-birth babies that couldn't be resolved by the established "sciences" of medical anthropology, dermatology, reflexology, or fingerprinting were solved by blood typing. When Charlie Chaplin was accused of paternity, blood typing proved his innocence. The jury, however, ignored the medical evidence, succumbed to the histrionics of the plaintiff's attorney, and convicted Chaplin.

The cast of characters in "Blood" includes historic notables, politically incorrect Nobelists, and bizarre personalities. Benjamin Rush, a signer

of the Declaration of Independence, was known as the Prince of the Bleeders for his liberal use of all forms of bleeding. Alexis Carrel, who performed the radial-popliteal transfusion and won the Nobel Prize in medicine for his early work in organ transplantation, stained his reputation by advocating eugenics and euthanasia. Soviet doctor Alexander Bogdanov promulgated the curious doctrine of "physiological collectivism," a sort of Marxian variation on blood brothers in which Bogdanov would undergo exchange transfusions with his students to promote mutual "vitalization." Bogdanov suffered a predictable, and perhaps poetically just, demise from massive transfusion reaction from mismatched blood.

Good history shows us the past to provide perspective on the present, and Starr's book does that. AIDS-tainted blood in France and the ongoing debate about volunteer vs. paid donors are contemporary echoes of events in blood's history.

"Blood" is medical history at its best: teaching tales, some sordid, some suspenseful, all sanguinary, charting the stumbling course of science. **MM**

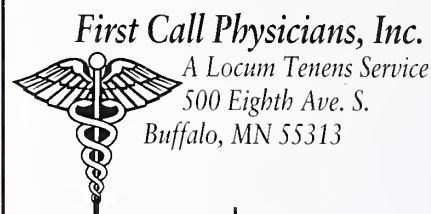
Charles Meyer is editor-in-chief of Minnesota Medicine.

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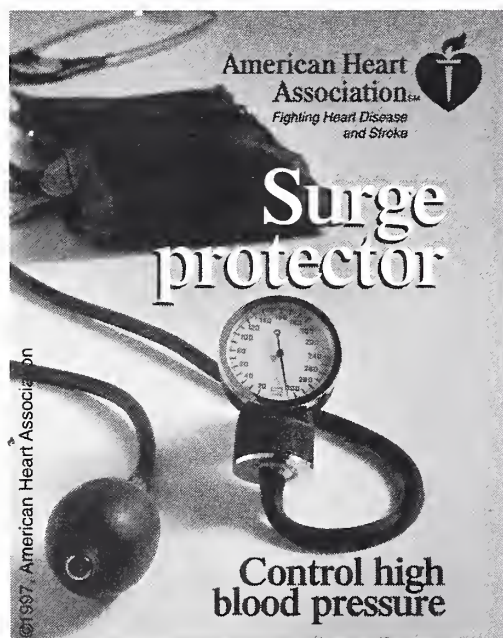
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JUNE 1999

June 16-18 **63rd Annual Advances in Breast, Endocrine, and Cancer Surgery Course** University of Minnesota Medical School, Department of Surgery; Willey Hall, University of Minnesota, Minneapolis, MN. CONTACT: Office of Continuing Medical Education, University of Minnesota, 107 Radisson Hotel Metrodome, 615 Washington Avenue SE, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

June 18 **Current Topics in Brain Injury Rehabilitation** Mayo Continuing Nursing Education; Mayo Medical Center, Siebens Medical Education Building, Rochester, MN. CONTACT: Mayo Continuing Nursing Education, Eisenberg S-41, 200 First Street SW, Rochester, MN 55905; 800/545-0357.

June 25 **Asthma Management in the Primary Care Setting** American Lung Association of Minnesota and Minnesota Thoracic Society; Minneapolis Airport Marriott, Bloomington, MN. CONTACT: Mari Drake, 490 Concordia Avenue, St. Paul, MN 55103; 651/223-9564.

JULY 1999

July 18-24 **Mayo Clinic Internal Medicine Certification and Recertification Board Review 1999** Mayo Foundation; Mayo Civic Center, Rochester, MN. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 28-30 **The Fifth Annual Mayo Multidisciplinary Symposium on Platelets, Blood Vessels, and Extracorporeal Medicine** Mayo Foundation; Leighton Auditorium, Siebens Medical Education Building, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 28-31 **Mayo Interventional Cardiology Symposium** Mayo Foundation & Society for Cardiac Angiography and Interventions; Silverado Country Club & Resort, Napa Valley, CA. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 29 **Mayo Coagulation Wet Workshop** Mayo School of Continuing Medical Education; Harold W. Siebens Medical Education Building, Mayo Medical Center, Rochester, MN. CONTACT: Jenny Kundert, CME Specialist, Mayo School of Continuing Medical Education, Pavilion Mezzanine, 200 First Street SW, Rochester, MN 55905; 507/266-9849 or kundert.jenny@mayo.edu.

July 30-31 **Bleeding and Thrombosing Diseases: The Basics and Beyond** Mayo School of Continuing Medical Education; Harold W. Siebens Medical Education Building, Mayo Medical Center, Rochester, MN. CONTACT: Jenny Kundert, CME Specialist, Mayo School of Continuing Medical Education, Pavilion Mezzanine, 200 First Street SW, Rochester, MN 55905; 507/266-9849 or kundert.jenny@mayo.edu.

AUGUST 1999

Aug. 15-20 **Mayo Clinic Review of Women's Health Care** Mayo Foundation; Honolulu, HI. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

SEPTEMBER 1999

Sept. 9-11 **Practical Surgical Pathology** Mayo Foundation; Mayo Clinic, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Sept. 10 **1999 Primary Care Conference** St. Mary's/Duluth Clinic Health System; Holiday Inn Hotel and Suites, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Sept. 16-18 **62nd Annual Colon and Rectal Surgery: Principles and Practice Course** University of Minnesota; Minneapolis Hilton Hotel and Towers, Minneapolis, MN. CONTACT: Cynthia Iverson, 2550 University Avenue W, Suite 313N, St. Paul, MN 55114; 651/312-1556.

Sept. 23-25 **MAPA's 24th Annual Fall CME Seminar** Minnesota Academy of Physician Assistants; Quality Inn, Winona, MN. CONTACT: Deb Sanders, 3433 Broadway Street NE, Suite 300, Minneapolis, MN 55413; 800/342-5662.

Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.



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October 1999

29 Front Line Neurology Symposium

PRESENTED BY: Allina Health System

LOCATION: Sheraton Metrodome, Minneapolis, MN

November 1999

11 Dementia Treatment, Management & Research: Preparing for the Age Wave

PRESENTED BY: Allina Health System Center for Healthy Aging and The Alzheimer's Association

LOCATION: Earle Brown Heritage Center, Brooklyn Center, MN

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MDsearch assists medical groups and hospitals in their recruiting efforts. For confidential information on opportunities in the Upper Midwest, send CV and/or call collect Mary Jo Cordes, MDsearch, PO Box 21507, St. Paul, MN 55121; 651/454-7291. Fax: 651/454-7277. (2/93-R)

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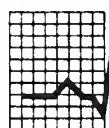
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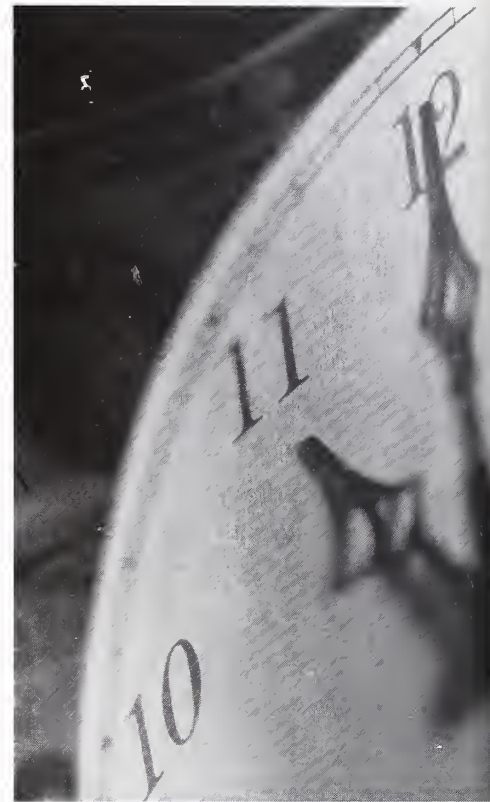
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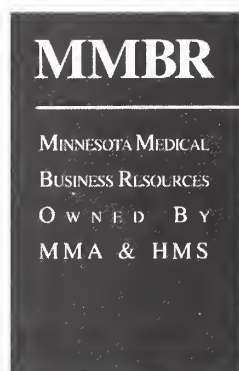
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If These Walls Could Talk

How Not to Sound Like a Building When You Write

James Kaufmann, Ph.D.

Despite their human origin, many medical texts sound as if they were generated by institutions, by the buildings themselves, and not by the people inside them. By compressing information and inflating the language, authors of such texts create dense documents that are the linguistic equivalent of a medieval fortress. Fortunately, some of the text characteristics responsible for this effect are easily recognized. Avoid them and you'll open a door to meaning for your readers.

Tear Down Noun Stacks

One technique authors use to make walls out of words is called noun stacking. By itself, the word *heart* is a noun. However, because of the magnificent versatility of our language, nouns can double as adjectives. In the phrase *heart chamber*, for example, *heart* functions as an adjective, telling what kind of chamber.

Readers can easily scale a wall that is two or three nouns high (for example, *heart chamber pressure*). Taller walls, however, can impede access to meaning. To the writer, who knows the meaning intended, it may seem reasonable to say *heart chamber pressure change*, or even *heart chamber pressure change mechanism*. But for the reader, such noun stacks make reading difficult at best, and at worst obscure the meaning.

What's a quick remedy for a problematic noun stack? Use a preposi-

tion to reduce its height: *Change in heart chamber pressure* is an easier wall for your reader to get over.

Minimize the Granite

Nominalization in writing is similar to granite in construction. Each adds mass and impenetrability. Works well for buildings.

Loosely defined, nominalization is the act of making something into a noun. Usually, it's a verb that gets the makeover, through the addition of a suffix such as *-tion* or *-ment*. Often, writers aren't aware that they're doing it; out comes *drugs for the treatment of leukemia*, rather than the underlying *drugs for treating leukemia*.

There is nothing inherently wrong with nominalization. At times it's even desirable. But verbs provide the vigor in your writing, and if nominalization goes unchecked, natural vigor is squandered and texts become heavy. They get longer, too. *Techniques for the measurement of plasma growth hormone levels* is two words longer than its non-nominalized alternative: *techniques for measuring ...*. Even the new phrase would have a four-word noun stack at the end. If one chooses to let that stand, revising the nominalization at the beginning of the phrase becomes even more crucial. Otherwise, the phrase is weighed down at both ends.

Nominalizations are easy to spot.

Review your text, looking for words ending in *-tion* or *-ment*. When possible (it won't always be), change them to a verb form. Rather than *for protection of the brain*, say *to protect the brain*. You'll be surprised how much you can lighten a text that way.

Dilute the Mortar

To be somewhat reductive about it, in medical writing, the big words are held together by the little words. Because some of the big words are necessarily large, it is all the more important that the little words not get any bigger. Instead of *at this point in time, due to the fact that, in addition, in the event that, in order to, prior to, subsequent to, and utilize, say now, because, also, if, to, before, after, and use*. Look for every opportunity to simplify your language.

When to Pare Down

We all stack nouns, nominalize, and inflate simple words when we write. Don't worry if your first draft sounds like a building. When you edit, however, do a special pass looking for ways to humanize your text. MM

James Kaufmann is director of the Office of Communications, Hennepin Faculty Associates, in Minneapolis. © 1999 James Kaufmann

Minnesota Medicine

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SPECIAL ISSUE:
Human Rights & Medicine

JULY 1999

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COVER

A Kosovar refugee waited hours for food in a Macedonian refugee camp. Photograph by Bill Greene/Boston Globe Photo.

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The Politics of Compassion

There's no such thing as an unpolitical man.

—Yakov, in *"The Fixer,"*
Bernard Malamud



Fred Cuny was a tall, bold, enterprising Texan who lived for disasters. After several false starts, he found a niche in his early 20s organizing relief efforts. Starting in Biafra's jungles in 1969, Cuny traveled to such political hot zones as Somalia, Sarajevo, and Iraqi Kurdistan to deliver food, house refugees, and supervise medi-

cal services. His actions earned him widespread acclaim and colorful nicknames like "the Lone Ranger of Emergency Assistance" and "the Master of Disaster." He didn't do it for money. He was the humanitarian's humanitarian. And he seemed invincible. Until Chechnya.

Like many other late-20th-century "mini-wars," the 1994–1996 battle between Russia and the rebel province Chechnya left behind corpses and refugees. Perhaps more perplexing than most such wars, Chechnya involved an aging superpower struggling to maintain face and nationalist rebels struggling to unify a hodgepodge of bandit splinter groups while the rest of the world looked on, struggling to understand the brutality. Into this tangle flew Fred Cuny in March 1995 to plan a relief effort for the thousands made homeless and sick by the bombs and bullets. One day Cuny left for the Chechen capital of Grozny in a rented ambulance with two doctors and another colleague. Only one of them returned. Exhaustive searches by U.S. authorities, the Cuny family, and journalist Scott Anderson are chronicled in Anderson's recent book, *"The Man Who Tried to Save the World: The Dangerous Life and Mysterious Disappearance of Fred Cuny."*

That Fred Cuny was murdered is clear.

But who murdered him fuels pages of speculation by Anderson. Whether it was the Russians in reprisal for Cuny's public criticism of their Chechen action or rebel Chechens fearful that Cuny was a CIA agent, Cuny's death exemplifies politics trumping compassion.

Cuny's life and death dramatize themes found in this month's *Minnesota Medicine*, which explores how medicine confronts human ailments caused by the trampling of human rights. Classic medical teaching deals with disease in isolation. Pneumonia is pneumonia, caused by an organism and cured by an antibiotic. But politics can cause disease, and politics can interfere with curing disease. Medical training tells physicians to treat all patients similarly, regardless of color or creed. But what if delivering care is a political act? Fred Cuny's story demonstrates that medical care may not be simply medical and that humanitarian acts may not be universally applauded.

The problems that need solving in Chechnya or Kosovo make treating a ventilator patient with ARDS seem simple. And they make an individual feel powerless. Big governments, big corporations, and big hatreds provoke the nagging question: "What can I do about that?" This month's articles describe people who are doing something about those big problems. Whether in Tibetan villages, Kosovo refugee camps, or at the University of Minnesota's Center for Victims of Torture, these people are tackling superhuman dilemmas at the human level.

In Bernard Malamud's novel *"The Fixer,"* the Jewish fixer Yakov gets yanked out of his minding-his-own-business life and thrown in jail, accused of a ritual murder he didn't commit. He starts the story proclaiming that he is not a political man. After languishing in prison for weeks, he realizes that just being Jewish in his Russian society means being political.

We in medicine need to take lessons from Yakov and Cuny. Their stories tell us we can't afford to look away from injustice and plead no involvement, even when there are risks. The following stories assure us we can all make a difference—one life at a time.

—Charles R. Meyer, M.D., Editor-in-Chief

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IMITREX is a prescription medicine created specifically for the acute treatment of migraine attacks in adults. You should not take IMITREX if you have certain types of heart or blood vessel disease, a history of stroke or TIAs, or uncontrolled blood pressure. Very rarely, certain people, even some without heart disease have had serious heart-related problems.

So talk to your doctor, especially if you have risk factors for heart disease, like smoking, diabetes, high blood pressure or high cholesterol; or if you're pregnant, nursing or taking medications.

1. Source: Physician Drug and Diagnosis Audit (PDDA), November 1996–October 1997, Scott-Levin, a Division of Scott-Levin, PMSI, Inc.

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WHAT IS IMITREX?

IMITREX is the brand name of sumatriptan, a drug intended to relieve your migraine headaches but not to prevent or reduce the number of migraine headaches you experience. IMITREX should be used only to treat an actual migraine attack. IMITREX can be obtained only with a doctor's prescription and should be used by adults only after discussing the choice with your doctor, taking into account your individual preferences and medical circumstances.

HOW DOES IMITREX WORK?

How IMITREX works is not completely understood. IMITREX is a 5-HT₁ agonist that seems to relieve migraine headaches by acting like a brain chemical called 5-hydroxytryptamine, causing some blood vessels in the head that are swollen during a migraine to constrict (that is, to become smaller), which helps relieve migraine headache.

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Although the vast majority of patients who have taken IMITREX have not experienced any significant side effects, some patients have experienced serious heart problems and, rarely, considering the extensiveness of IMITREX use worldwide, deaths have been reported. In all but a few instances, however, serious problems occurred in patients with known heart disease, and it was not clear whether IMITREX was a contributing factor in these deaths.

Serious events relating to the blood vessels in the head (e.g., brain hemorrhage, stroke) have been reported in patients who were taking IMITREX. Some of these have resulted in death; however, the relationship of IMITREX to these events is uncertain. In a number of these cases it appears possible that patients were not experiencing a migraine but rather an event due to blood vessel disease in the head. IMITREX was given in the incorrect belief that the person may have been suffering a migraine. Therefore, you should not take IMITREX if the headache you are experiencing is different from your usual migraine attacks. People who suffer from migraines may be at increased risk of certain blood vessel events in the brain (e.g., hemorrhage, stroke, or transient ischemic attack).

Ask your doctor about these and additional safety considerations.

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- If you have uncontrolled high blood pressure, you should not use IMITREX.
- If you are taking certain drugs for depression, talk with your doctor. IMITREX should not be used if you take or have taken within the last 2 weeks, monoamine oxidase inhibitors (MAOIs).
- Your doctor will discuss with you the type of migraine headaches you have. If you have hemiplegic or basilar migraine, you should not take IMITREX. IMITREX should be used only in patients who have been diagnosed by a physician as having migraine with or without aura.
- Tell your doctor about any other medications you are taking. If you are currently taking any migraine medications that include ergot alkaloids, such as methysergide or dihydroergotamine, or other 5-HT₁ agonists, do not take IMITREX within 24 hours of taking these medications.
- Do not take IMITREX if you are allergic to sumatriptan or any of the ingredients in IMITREX.

WHAT MEDICAL PROBLEMS OR CONDITIONS SHOULD I DISCUSS WITH MY DOCTOR?

- If you have risk factors for heart problems, you should tell your doctor. Your doctor should examine you for heart disease to see whether IMITREX is appropriate for you. Risk factors include high blood pressure, high cholesterol, obesity, diabetes, and smoking. Other patients with risk factors for heart disease are women who are past menopause (whether natural menopause or menopause resulting from surgery), men over 40 years old, or patients with a family history of heart disease. If you have risk factors and your evaluation for heart disease is satisfactory, your doctor may ask you to take the first dose of IMITREX in the doctor's office.
- Tell your doctor if you have chest pains, shortness of breath, or irregular heart beats.
- Tell your doctor if you are taking selective serotonin reuptake inhibitors (SSRIs).
- Tell your doctor if you have a history of epilepsy or seizures.
- Tell your doctor if you have liver or kidney problems.
- Tell your doctor if you have ever had to stop taking any medication because of an allergy or other problems.

USE OF IMITREX DURING PREGNANCY AND BREAST-FEEDING

Do not take IMITREX if you are pregnant, think you may be pregnant, are trying to become pregnant, are not using adequate birth control methods, or are breast-feeding, unless you have discussed this with your doctor.

HOW TO USE IMITREX TABLETS OR NASAL SPRAY

Tablets: For adults, the usual dose is a single tablet taken whole with fluids. A second tablet may be taken if your symptoms of migraine come back or if you have partial response to the first dose, but no sooner than 2 hours after taking the first tablet. For a given attack, if you have no response to the first tablet, do not take a second tablet without first consulting with your doctor. Do not take more than a total of 200 mg of IMITREX Tablets in any 24-hour period.

Nasal Spray: For adults, the usual dose is a single spray administered into one nostril. If your headache comes back, a second nasal spray may be administered anytime 2 hours after administering the first spray. For a given attack, if you have no response to the first nasal spray, do not take a second nasal spray without first consulting your doctor. Do not administer more than a total of 40 mg of IMITREX Nasal Spray in any 24-hour period. The effects of long-term repeated use of IMITREX Nasal Spray on the surface of the nose and throat have not been specifically studied.

The safety of treating an average of more than four headaches in a 30-day period has not been established.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF USING IMITREX?

Do not rely on this summary alone for information about side effects. Your doctor can discuss with you a more complete list of side effects that may be relevant to you.

The most frequently seen side effects are tingling and warm/cold sensations with IMITREX Tablets and bad/unusual taste with IMITREX Nasal Spray.

- Some patients feel pain or tightness in the chest or throat when using IMITREX. If this happens to you, discuss it with your doctor before using any more IMITREX. If the pain is severe or does not go away, call your doctor immediately.
- If you have sudden or severe abdominal pain after taking IMITREX, call your doctor immediately.
- Shortness of breath; wheeziness; heart throbbing; swelling of the eyelids, face, or lips; or a skin rash, skin lumps, or hives happen rarely, but if they happen to you, tell your doctor immediately. Do not take any more IMITREX unless your doctor tells you to.
- Some patients have feelings of tingling, heat, flushing (redness of the face lasting a short time), heaviness, or a feeling of pressure after taking IMITREX. A few patients may feel drowsy, dizzy, tired, sick, or experience nasal irritation (Nasal Spray only). Tell your doctor about these effects at your next visit.
- If you feel unwell in any other way or have any problem that you do not understand after taking IMITREX, tell your doctor immediately.

WHAT SHOULD I DO IF I TAKE AN OVERDOSE?

If you have taken more medication than you have been told, contact either your doctor, a hospital emergency department, or the nearest poison control center immediately.

HOW SHOULD I STORE IMITREX?

Be sure to keep your medicine in an area that cannot be reached by children. It may be harmful to children.

IMITREX Tablets and IMITREX Nasal Spray should be stored at room temperature and do not require refrigeration. Do not store above 86° F (30° C) or below 36° F (2° C). Store away from heat and light. If your medication has expired (the expiration date is printed on the label) throw it away as instructed. If your doctor decides to stop your treatment with IMITREX, do not save any leftover medication unless your doctor tells you to do so. Throw it away as instructed.

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Corrections

The title of the June *Minnesota Medicine* Public Health Report, page 30, should have read "The New Lyme Disease Vaccine," not "The New Lyme Virus Vaccine." The authors and editors regret the error. The authors also want to clarify that the LYMERix™ vaccine should not be used in patients who suffer treatment-resistant Lyme arthritis, because, theoretically, the vaccine might worsen their arthritis.

A World of Opportunity ...



PHOTOGRAPH BY JOHN NOLTNER

and Need

To reach the mountain village of Tipling, Nepal, where she worked for a month earlier this year, family physician Kathi Antolak, M.D., had to hike for more than two days and navigate a 14,000-foot pass in the Himalayas. But many of her patients' journeys were even more arduous. "One young man carried his mother for a day and a half to get her to the clinic," Antolak recalls. (The woman had pneumonia. The son, not surprisingly, complained of low back pain.) Other villagers hiked for days just to reach the road that led to the mountain clinic.

Antolak, who lives in Minneapolis, went to Nepal as a staff physician for Himalayan Health Care (HHC), a New York and Katmandu-based organization that brings medical care to remote areas of the region and trains health care workers. When Antolak arrived, patients were already waiting. "They sent out a notice saying we would be there," she says. Antolak's team, which included three other physicians and a nurse, had no lab and very little equipment or supplies. Most of the villagers spoke only Tamang, the tribal language, or Nepali. Many were suffering from tuberculosis, a big problem in Nepal, says Antolak.

Patients with serious illnesses who need continuing care are referred to medical facilities in Katmandu. But only one in 10 of the patients referred there will actually go, Antolak learned. "It's a big city ... scary and expensive [to the villagers]," she says. "It's about a day's drive, and many people don't have money to make the trip."

Most of the villagers are very poor. The average income is about \$150 a year, Antolak notes, and even rice is considered a luxury. "Most people don't eat it, because it's too expensive; they eat millet instead."

"Malnourishment allows TB to fester," she adds. "The social/political/economic factors are really key to the health of these people and whether they have enough to eat, a place to live and feel safe." The HHC team helped open a small co-op store so villagers could get basic

necessities more readily, but the entire economy of Nepal must change before the health of its people can be improved significantly, Antolak says. "Many people have done subsistence farming, but the farms don't support them anymore." The villagers must turn to new businesses, such as Angora knitting, to make a living. "The most difficult thing about being there is seeing the limitations," says Antolak.

She faced similar challenges in Tibet, where she traveled two years ago to bring in medications and supplies. That project was an outgrowth of her work as medical director for the Minnesota Tibetan Resettlement Project from 1991 to 1993. "I came home from that first trip so

appreciative of the simple things we take for granted here ... like freedom," she says. "Tibet is an occupied country, and you see a lot of Chinese soldiers with guns." The trip also gave Antolak an appreciation for the material advantages of Western civilization, such as a hot shower, electricity, a lab, and x-ray equipment.

An Urge to See the World

Helping people in remote areas of the world was only a far-flung fantasy when Antolak, 46, was growing up in Pequot Lakes, Minnesota. Her family operated a small resort for a time, and Antolak observed the traveling guests wistfully. "I'd see people coming and going in my small town and I'd think, 'How do they do it?'" Antolak's early life was not a privileged one. Her mother, who raised five children alone

after Antolak's father died at an early age, provided a strong model for Antolak. "She got her GED and worked in the school kitchen and as a nurse's aide," Antolak says. "From my mom, I got the sense that things should be fair and just."

Even as a teen, Antolak had serious interests—philosophy, history, and chemical and biological warfare. "Man's Search for Meaning" by psychiatrist Victor Frankl made a big impression on her as a teenager. "It was about his experience in Auschwitz and how people survived," she recalls. "People with meaning in their lives survived."

Medicine and human rights are intertwined for Kathi Antolak, M.D., who serves poor people in Nepal and Tibet, and refugees and immigrants in the United States.

By Kim Palmer

Antolak's high SAT scores got her into an honors program at Marquette University, where she began studying philosophy and theology. "At age 18, my life had already exceeded all my expectations," she says with a smile.

Antolak was interested in becoming a doctor but intimidated by the prospect of medical school. Then, during her senior year, when a friend was waiting to hear whether he had been accepted into medical school, it occurred to her: "He's not any smarter than I am; if he can do it, I probably can, too."

Antolak moved to Minneapolis and studied premed science for a year at the University of Minnesota. She took a detour when she was accepted into the Pacific School of Religion in Berkeley, California, but returned to Minneapolis after a year to attend medical school at the University of Minnesota, where she earned her M.D. in 1981. She chose family medicine because she wanted to practice in a smaller community, with a lot of personal contact with her patients, she says. In 1985, she joined a practice in Hudson, Wisconsin, where she remained until last year, when she was awarded a Bush Medical Fellowship Sabbatical. "There were other things I felt called to do," she says. To learn more about treating

tuberculosis, she studied at the chest clinic at Hennepin County Medical Center. ("It's a mini-U.N. every morning," she says.) She also worked with a speech consultant and attended Toastmasters to hone her public speaking skills. Antoiak is developing a slide show based on her travels, which she plans to use during presentations about health care needs in the Himalayas. "I had always found public speaking fearsome," she says. "But it does make a difference when it's something you believe in and care about."

Treating Torture Survivors

One of the things Antolak is motivated to speak out about is health care for refugees. For the past five years, she has served on the medical staff at the Center for Victims of Torture in Minneapolis (see related story, page 14). "People don't want to hear about torture," she says. "I approached one physician with a request to give a talk at grand rounds, and he physically shuddered at the idea of torture. There hasn't been much in the primary care journals about treating survivors of torture," she adds. As a result, many physicians know little

Opportunity to page 45

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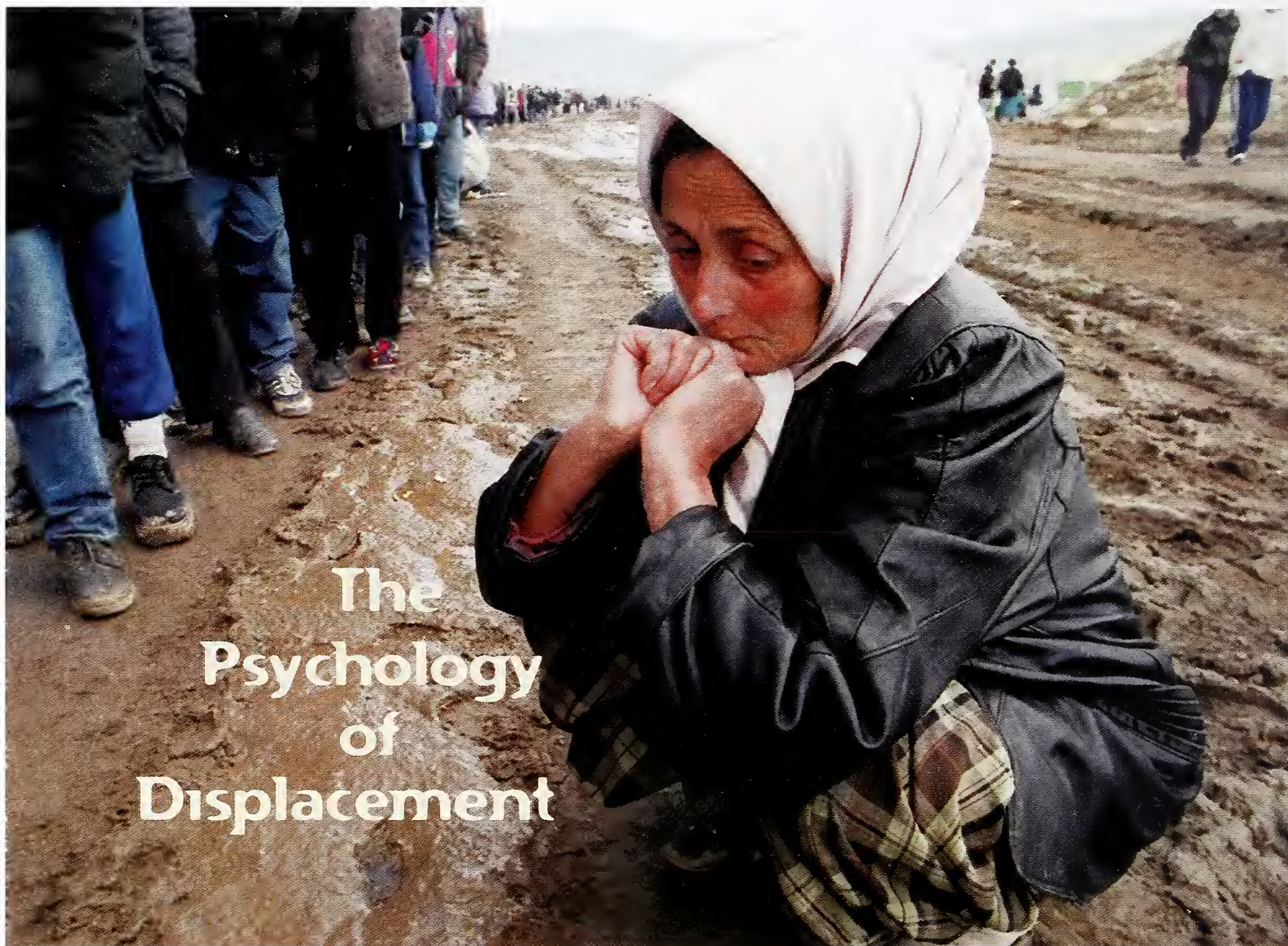
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The
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The Crisis in Kosovo

Michael Vjecha, M.D., and Greg Fields

The Minneapolis-based American Refugee Committee is helping refugees from Kosovo cope with the physical and emotional trauma of being forced from their home.

When the door to Sead's small house was thrust open by armed paramilitaries in early April, he was told that he had five minutes to leave the only home he had known in 30 years or he would be shot. Sead grabbed his wife, threw some food into a bag, said a silent prayer, and ran out the door. By the time he had joined his neighbors on the road leading away from the village, he could see smoke rising from the lane behind his house. Sead could not tell if it was his house that was burning, but he also knew that it didn't matter. Burned or intact, his home had ceased to exist. On the way out of the region, Sead saw, for the first time in his long life, a dead body.

Sadly, Sead's story is not uncommon among the refugees who have fled Kosovo. By mid-May, more than 850,000 ethnic Albanians had been forced out of the province by Serbian forces. Most of the refugees made their way to the surrounding countries of Macedonia and Albania, but the Kosovars have arrived throughout Europe, in Bosnia, Croatia, Greece, and Turkey. They carry with them stories of horror and loss. They carry the private stigmata of being displaced.

They also carry an array of medical and psychological afflictions seldom seen since the last days of World War II. While the physical traumas associated with a forced, often violent crossing through rugged terrain might be predictable—hypothermia, malnutrition, exposure—the emotional maladies will no doubt be the most persistent. The psychological scars of Kosovo's victims will be a part of the regional landscape for years to come.

First among those scars is the trauma of upheaval. Kosovo is a largely rural province, populated by an agrarian society that lives simply. Most of those who fled the fighting had never traveled far from their native villages. In one violent gesture, they were thrust into a new and strange environment, their lifelong point of security eliminated.

Partly for this reason, the Kosovar refugees remain firmly committed to going home, despite the apparent

physical and political obstacles. Anthony Kozlowski, president of the American Refugee Committee, visited the refugee population in Macedonia in April. "In 30 years of dealing with the displaced, I have never before seen a group of refugees so passionately committed to returning to their homeland," he observes. "They are truly in grief that they have had to leave their land." Because of this deep emotional attachment, almost all the refugees have resisted efforts to resettle them, even temporarily, in nations not contiguous with Kosovo.

Already traumatized by their flight, the refugees have a particularly profound response to the horrors of war. Refugees not only have been ousted from their homeland but also may have to cope with the loss of family members who have been separated from them or murdered, as well as the destruction of social ties, the elimination of villages, and, if allegations prove true, the systematic rape of young women within their communities. The cumulative effects of such experiences have stunned the social psychologists working in the region.

Traditionally, most of the attention given to refugees throughout the world has focused on basic physical needs essential for survival. And, while providing shelter, medicine, and food is important in the current crisis, the problems in the Balkans promise to be broader than mere survival. The challenge in the years ahead will be to help the Kosovars achieve a renewed sense of security that, in turn, will provide the incentive to recreate what has been lost.

Helping the Refugees

In April, the Minneapolis-based American Refugee Committee (ARC) sent a field staff of five, including Michael Vjecha, M.D., to Macedonia. Vjecha, an internist and Jesuit priest, is assistant director for international programs at ARC. The group's goal was to help the Macedonian government set up teams of doctors and nurses to care for the thousands of Kosovar refugees in Macedonia. The health practitioners focused on preventing outbreaks of infectious diseases and treating people for exhaustion, anxiety,

high blood pressure, and migraines.

Sead's family was visited by one of ARC's mobile medical units within the first week of their resettlement. Like most of the other refugees, Sead and his family were housed in a private home in Macedonia. Their ethnic Albanian host family had two children and limited financial resources.

The health practitioner who headed the unit, a nurse on loan from ARC's program in Bosnia, interviewed Sead and his wife, discussed their history, and performed a basic medical evaluation. He then did the same with every member of the host family. Before leaving, the practitioner provided personal hygiene kits consisting of basic items such as soap, toothpaste, and aspirin for everyone in the newly expanded household. He also made an appointment for a return visit, during which he would be accompanied by a social psychologist, who would evaluate the refugees' mental condition and assist with any problems the host family was encountering.



PHOTOGRAPH COURTESY OF ARC

Many refugees from Kosovo fled to Macedonia, where ARC and other humanitarian agencies have helped them survive until they can return to their homes.

ARC's goal is not only to help the refugees remain healthy but also to improve Macedonia's health infrastructure. While Macedonia has a number of hospitals and clinics, they cannot handle the demands of this large influx of people with traumatic health conditions. Part of ARC's program is to assess current health care capabilities and make recommendations for structural improvements.

Sead's future is uncertain. How long he and his wife will stay with his

Macedonian host family, where they will eventually relocate, and whether they will ever be able to return to Kosovo are all questions he agonizes over daily. At least he will not have to face these questions alone. Sead will be supported by the humanitarian relief agencies that have responded to this massive crisis. **MM**

Michael Vjecha is assistant director of international programs for ARC. He has been with ARC since 1989 and has worked in the organization's field programs around the world. Greg Fields is director of development for ARC.

The American Refugee Committee: Rebuilding Lives

Long before refugees began streaming out of Kosovo into Albania and Macedonia, the American Refugee Committee (ARC) had studied the area, on the alert to possible problems. Because ARC had been working in Bosnia, Croatia, and Albania since 1992, the United Nations High Commissioner on Refugees asked ARC to assess the state of the health care infrastructure in Macedonia, in case the Kosovo crisis escalated. And when it did escalate, to tragic proportions, ARC was ready to help—medical teams are working with the refugees, and other staff are helping make structural improvements to the health care system in the region.

From its modest headquarters in south Minneapolis, the American Refugee Committee, a nonprofit, nonsectarian organization with an \$18 million budget and about 1,000 employees worldwide, keeps close track of political hot spots throughout the world—

places such as Bosnia, Rwanda, Somalia, and Sudan. And when war erupts, ARC responds by caring for displaced refugees, boosting existing health care systems, and helping the refugees rebuild "productive lives of dignity and purpose," as the committee's mission statement avows.

Rebuilding lives often means dealing with practical issues such as building new homes and schools, repairing or installing potable water systems, setting up playgrounds for kids, and planting trees. At the same time, ARC works to educate the public about the global refugee crisis. The committee's Focus on Hope educational program, for example, brings the message to school-age kids. Students will meet and interview refugees, who will share their perspectives and experiences while offering ideas for a more peaceful time.

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Turning Victims into Victors

THE CENTER FOR VICTIMS OF TORTURE HELPS TO
HEAL THOSE BROKEN IN BODY, MIND, AND SPIRIT.

By Jack El-Hai

A woman sits in an upholstered chair in the parlor of a tall Victorian house in Minneapolis overlooking the Mississippi River. She wears a dark jacket, a white blouse, and brown wool pants, and she folds her hands in her lap. Perhaps 45 years old, she has an untroubled expression on her brown face as she gazes at the fireplace, a wall of books, and the richly colored Oriental rug. She could be a business owner, a lawyer, or somebody's aunt. She looks completely unremarkable.

But sometime, probably not very long ago, she was tortured. If she is like many of the others who have sat in this parlor's upholstered chairs before her, she was held in detention by an overseas government for about nine months. Her captors likely beat her, psychologically abused her, deprived her of basic creature comforts, and raped her. She may have witnessed the torture and murder of family members and friends. She regained her freedom and came to Minnesota as a refugee. She is remarkable.

But she's not unique. She is among the more than 700 people from 50 countries, nearly all of them refugees living in Minnesota, that the Center for Victims of Torture (CVT) has treated since it opened in 1985 as the first organization in the United States devoted to the treatment of survivors of politically motivated or government-sanctioned torture and their families.

'We Can Do That'

The Center for Victims of Torture was born of the intertwining drives and desires of many people: physicians and other health professionals concerned about the welfare of refugees, a group of Minnesota lawyers advocating human rights, and the late Gov. Rudy Perpich. After visiting the Rehabilitation Centre for Torture Victims in Copenhagen, Perpich reportedly said, "We can do that."

Over the years the center has reached beyond Minnesota, helping medical organizations caring for torture survivors in Turkey and training health workers in Bosnia. It also successfully lobbied Congress in support of the Torture Victims Relief Act and launched a Child Survivor Project for children affected by torture within their families.

Still, the need for the center's services keeps growing. Today more than 100 governments condone torture, and the abuses by perpetrators affect a broader segment of the population each year. "Torture has become more chaotic, and it often comes outside the context of prison and detainment," says Rosa Garcia-Peltoniemi, Ph.D., L.P., the center's director of client services and psychological services. "It's more available in situations of total anarchy. We used to typically see prisoner-of-conscience types, people who had been held in prison and tortured there. Now there are large populations who come into contact with torture, often without having been political at all. It's more mainstream and often happens in situations where there is ethnic conflict."

Many of the new arrivals have come from such countries as Ethiopia, Somalia, Liberia, and Kenya. In fact, 87 percent of the new clients accepted by the

CVT last year came from Africa. Maintaining its current outpatient caseload of about 150 patients a year, the center can't begin to serve all the torture survivors who need help in Minnesota. Of the estimated 16,000 torture survivors in the state, only about 5 percent have even walked through the center's doors. Lack of information about the center,

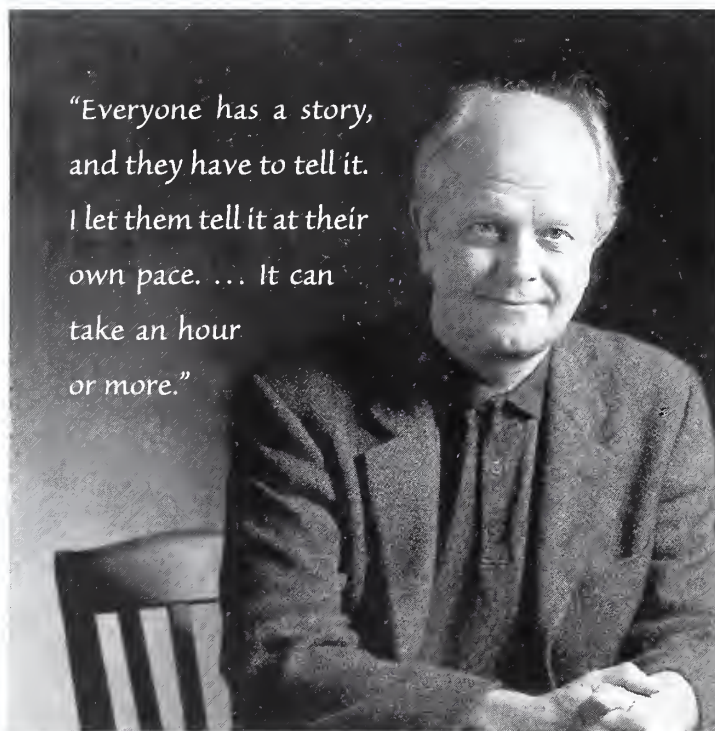
reluctance to be treated, or geographic distance from Minneapolis keeps the others away.

Inside the Center

Step inside the room where Neal Holtan, M.D., sees patients at the CVT and you'll quickly see that this is no ordinary examining space. On one wall hangs a hand-made map of Africa, a gift from a Liberian patient. "She wanted me to connect with her in a tangible way," says Holtan, a primary care physician. The map is beautiful and cartographically accurate,

though, in a wonderfully folksy touch, all the islands are square. A Guatemalan tapestry adorns another wall, along with a handmade Hmong tapestry. The only medical poster is an eye chart composed of variously oriented E's, for illiterate patients.

When patients first arrive at the center, which is identified on the outside only by a tiny metal tag bearing its name, patients wait in the parlor of the refurbished Victorian house, a gift from the University of Minnesota. Its homey features create an environment that Holtan hopes his patients find comforting, comfortable, and most important, a complete contrast to the places where torturers met them. Even Holtan's work attire—jeans and a plain shirt, no white coat—is meant to foster a sense of safety. In some nations, white-garbed physicians actively engage in torture.



NEAL HOLTAN, M.D.

*"Everyone has a story,
and they have to tell it.
I let them tell it at their
own pace. ... It can
take an hour
or more."*

How CVT Began

Holtan began treating refugees in the late 1970s as a camp doctor in Thailand, where he first encountered political refugees and their problems. By the time he returned to the Twin Cities, the area had become a haven for many new refugees, mainly Southeast Asians. "I saw many in my practice, and I was impressed by how traumatized they were," he says. "Some of my Cambodian patients were about as traumatized as any human could be and yet survive. And if they hadn't been traumatized, their family members had been."

Soon he heard about Denmark's Rehabilitation Centre for Torture Victims, and set up the International Health Program, a medical clinic and mental health center for refugees, at Regions Hospital in St. Paul. Psychiatrist James Jaranson administered the program's psychiatric services while Holtan ran the internal medicine services. The two continued to work together in the early planning stages of the CVT and now serve as co-directors of its medical services.

Holtan, who since the 1970s has treated hundreds of torture survivors, says that treating them is not much different from treating any other patients. "In a sense, I do with them what I do in any medical encounter—I build trust, determine what has happened and what is wrong, and do what can be done," he says. "It's pretty basic." Holtan has drawn fire for his viewpoint. "When I tell medical audiences that what we do is nothing different from what they do, they become irritated. They want to hear that what we do is different and special." But any good doctor, he maintains, can be a good doctor for torture survivors.

The Patients

Many of Holtan's recent CVT patients, referred to the center by friends and family as well as other health

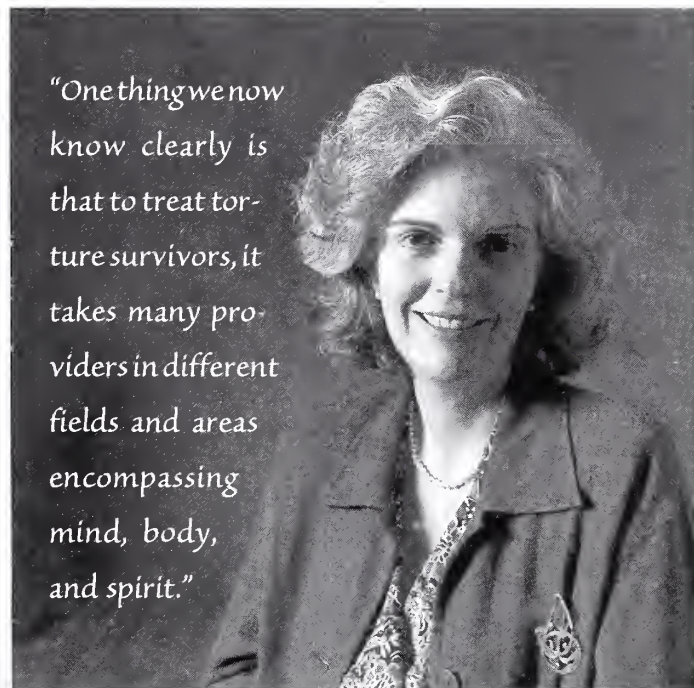
care providers, present a similar profile. They seek political asylum in the United States, have facility in English, are married with children, and are college-educated and younger than 35. Most have had family members tortured or murdered. Many are involuntarily separated from their spouse or children. Nearly three-quarters are unemployed.

Before arriving in this country, they experienced one or more kinds of torture, ranging from beatings, psychological torment, and deprivation (the three most common) to rape and pharmacological abuse. In recent years, several CVT patients have publicly described their torture. One survivor who has spoken out is Kifah Abdi-Coleman, a Minneapolis Public Schools language interpreter and member of a minority tribe in Somalia. In newspaper interviews, she has

told of witnessing the murder of 39 of her family members and of being repeatedly raped, beaten, and starved during her incarceration by Somali soldiers.

Another survivor, St. Paul teacher Richard Juma Oketch of Uganda, testified before Congress in support of the Torture Victims Relief Act and recounted the torture he experienced after Idi Amin targeted his family for destruction. Oketch, who lost his father, two brothers, a sister, seven cousins, and several other male relatives to Amin's government, was imprisoned three times for alleged treason. "I suffered cracked ribs, sprained neck, dislocated shoulders (both sides), was bayoneted all over my body and forced to drink vodka instead of water," he said in his testimony. For 15 years after escaping the country, he suffered from nightmares, insomnia, anxiety attacks, antisocial behavior, mood swings, and workaholism.

Not all CVT staff support making public disclosures. "I can't think of an instance in which that helps the victim," Holtan says. "It could retraumatize them, and it usually doesn't help them heal."



ROSA GARCIA-PELTONIEMI, PH.D., L.P.

'Everyone Has a Story'

Holtan does want to hear their stories in private, however. Although his new CVT patients usually arrive complaining of physical ailments, the cause of which has eluded previous health care providers, Holtan first asks to hear their story of torture. "Everyone has a story, and they have to tell it," he says. "I let them tell it at their own pace. The story is always interesting in that what they choose to tell you reveals much about how they view their experience, the level of their hope that their injuries can be reversed, their level of insight, how they view mind/body connections, and their social interactions. It can take an hour or more."

Then Holtan deals with the physical pain. "Here I can really build trust on a medical level. I pay attention to their current symptoms and treat them right there. They could have headaches, abdominal pain, diarrhea, muscle or bone or joint pain. I can treat it that day, even with over-the-counter medication," he says. "I'm taking their complaint seriously and I'm willing to do something about it. I'm not immediately jumping to use psychoactive medication."

A Team Approach

Of course, the patient's treatment does not end with the physical examination. The center takes a multidisciplinary approach to the care of torture survivors, mixing the approaches of general medicine and nursing, psychiatry, psychology, social work, and physical therapy in treatment that can last up to several years. "One thing we now know clearly is that to treat torture survivors, it takes many providers in different fields and areas encompassing mind, body, and spirit," says Garcia-Peltoniemi, herself a refugee from Cuba. "Torture can injure people in all of those areas."

The center's staff of 26 includes six physicians and three physical therapists. The most recent additions to the treatment team are social workers and physical therapists. The physical therapists treat stress-related tension and pain, while the social workers help patients overcome obstacles so they can rejoin their community. "A big problem we see here is underemployment," Garcia-Peltoniemi notes. "Many of our clients were leaders in their community or profession, and now they face a tremendous loss of occupational status in this society." Social workers help patients find work, housing, and language instruction.

Besides its professional staff, the center has eight volunteer psychotherapists and a corps of 375 volunteers who provide social support for survivors. "We discov-

RECOGNIZING AND TREATING TORTURE SURVIVORS

CVT's Minnesota Mainstream training program introduces health care and social service providers to important aspects of interacting with refugees, 25 to 30 percent of whom have experienced torture. Here are some of the training's key points:

- Ask patients if they have been hurt in their home country.
- Be sensitive to a fear of being touched.
- Look for such psychiatric symptoms as depression, nightmares, numbing, avoidance, irritability, and difficulty concentrating.
- Be aware that 90 percent of tortured women and 40 percent of tortured men have been sexually assaulted.
- Fully explain all procedures and treatments.
- Remember that even common instruments and equipment can appear threatening.
- Even if using an interpreter, speak directly to the patient.
- Reduce patients' time in waiting rooms.

ered that relationships with volunteers were special for our clients," says Douglas Johnson, executive director. "Their torturers told them, 'No one cares about you, no one will believe you, you will always be alone.' The volunteers are important in helping the survivors recreate trust, and their relationship gives them the sense that this community does care about them and that the torturers lied to them."

In the course of their multidisciplinary treatment, most CVT patients are diagnosed with a psychiatric disorder. Eighty-two percent of last year's new clients were diagnosed with posttraumatic stress disorder, 72 percent with depressive disorder, and 62 percent with both. "We use psychotropic medications [with] two-thirds of our clients," says Jaranson, who heads the CVT's psychiatric services. This contrasts with the relatively sparse use of such medications in torture treatment centers elsewhere in the world. "Elsewhere, the philosophy is that [only] through psychotherapy will people improve, and meds impair that treatment. Our philosophy is the opposite—that medications reduce symptoms, making psychotherapy progress faster," Jaranson says.

Does It Work?

Jaranson, who recently co-edited "Caring for Victims of Torture" (American Psychiatric Association Press, 1998), says the torture-care movement needs more solid research about the effectiveness of treatment. Complicated by issues of confidentiality, cultural barriers, and the reluctance of patients to participate in studies, research so far has consisted mostly of cataloging psychiatric problems that people have exhibited, he says. "There's some grandiosity in this field. People say, 'We're doing good work and we know what's best for people. We don't need research, because we know what's good for [patients].' And many [torture treatment] clinics are not research-oriented."

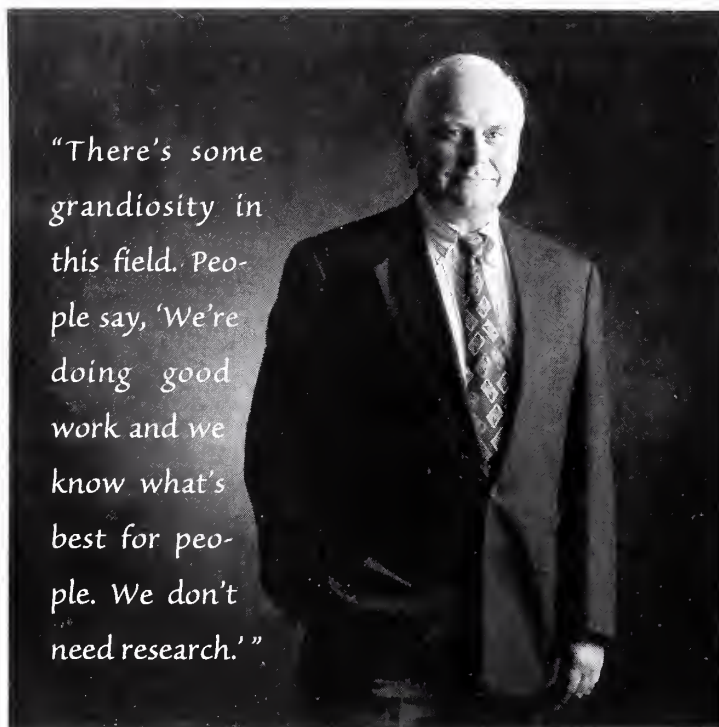
His colleague Holtan calls the absence of outcome research in general the "biggest failing" of the torture rehabilitation movement. Still, Holtan and other CVT staff maintain that the center's treatment saves lives and keeps many patients from falling into a pit of crime, poverty, mental illness, and family deterioration. "I have said in the absence of studies that one-third of our patients do very well, one-third do OK, and one-third do not improve," Holtan says.

Training Programs

The CVT's board of directors in 1995 decided to reallocate its resources to train people outside the organization. "We hope to identify those who want to make [treating torture survivors] part of their life's mission, and those who will work with us on this," says executive director Johnson.

The long waiting list was the impetus. "In a nutshell, we realized that even if we doubled our client load over the next five years, we would have helped twice as many people but would have only moved from one drop to two in the bucket," explains Johnson. For the first time, CVT's training budget exceeded its client care budget last year. The center's overall budget for 1999 is \$2.2 million, 27 percent of which goes to client care and 31 percent to training.

The center's marquee training program is Minnesota Mainstream, intended for physicians, nurses, paramedics, social workers, and others in the medical and social service professions in outstate Minnesota who come in contact with refugees. Other new training programs include one that instructs teachers and school staff about the effects of torture and war on refugee children.



JAMES JARANSON, M.D.

VARIETIES OF TORTURE

Beating, slapping, kicking, punching
Psychological abuse
Deprivation
Sexual abuse
Witnessed torture
Forced posture
Burns
Asphyxiation
Electrical shock
Pharmacological abuse
Telephone blows to the ear
Blows with objects

Falanga, beating of the soles of the feet
Exposure to extreme cold or heat
Prolonged enforced standing
Pulling the nails of feet or hands
Detonation of explosive devices
Forced isolation
Overcrowding
Restricted movement or immobilization
Blindfolding
Sleep deprivation
Lack of personal hygiene

Withholding needed medical care
Exposure to constant noises
Exposure to screams and voices
Exposure to powerful lights
Verbal abuse
Threats against family or loved ones
False accusations
Forced self-incrimination
Abuse with excrement
Mock executions
Being forced to perform acts of violence on others

Communities such as Rochester, Pelican Rapids, Mankato, and Worthington have seen a surge in their refugee populations, which in turn has spurred the demand for information about how to identify and treat torture victims.

Minnesota Mainstream, funded by a \$500,000 contribution from the Minnesota Department of Economic Security and staffed by a dozen trainers, "targets the first line of contact, the people torture survivors may encounter early on," says Melinda Czaia, CVT's director of training. "The ultimate goal is to create additional resources for torture survivors." CVT hopes that outstate trainees can become skilled in identifying torture victims and referring them to qualified help, thereby greatly expanding the network of assistance.

Minnesota Mainstream training, offered in free sessions as short as 90 minutes, covers identifying possible torture and war trauma survivors, recognizing the effects of torture on individuals and families, learning skills appropriate for the treatment of torture survivors, and determining where to refer survivors. In addition, Minnesota Mainstream teaches health care providers that seemingly routine procedures may threaten or frighten torture survivors. Czaia tells the story of an emergency room patient who began screaming when a nurse approached him with an ear thermometer. Later the nurse learned that the patient, a refugee, had been tortured in his ears.

Looking Ahead

What lies ahead for the center? Jaranson, acknowledging that the CVT model is expensive and difficult to replicate elsewhere in Minnesota, foresees a community-based approach that would include support from refugee mutual assistance organizations and training institutes similar to teaching hospitals.

Johnson, too, is optimistic about the future of his organization and movement. Talks about an expansion of the center are under way with the University of Minnesota, its landlord. And Johnson has some solid numbers showing the progress of the past 14 years. "We were the third treatment center in the world and the first in the U.S.," he says. "Now there are at least 14 in the U.S. and 250 around the world to address this problem. It's an idea whose time has come and is fueled by hope." MM

Jack El-Hai, who wrote about the University of Minnesota's twins studies for the March Minnesota Medicine, contributes to many national and regional magazines.

All photographs by John Noltner.



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Child Survival



A Fundamental Human Right

Although international human rights laws promote basic rights essential to child survival, many countries, including the United States, fall short of compliance.

By Huy Pham, M.P.H., and Mary W. Marrow, J.D.

A society in which human rights are promoted and protected and in which human dignity is respected is a healthy society; that is, a society in which people can best achieve physical, mental and social well-being.

—Jonathan Mann, “Human Rights and the New Public Health,” *Health and Human Rights* 1995;1(3):229-33.

The continuing worldwide crisis of excessive and preventable child mortality is not only an unconscionable tragedy, it is an international human rights violation. The deaths of millions of children under age 5 each year cannot be viewed as an exclusively biological event, nor as a behavioral issue unrelated to an underlying social and economic context that undermines people’s abilities to ensure the health and well-being of their children. Rather, these preventable child deaths from the “diseases of poverty” must be considered a violation of basic social and economic rights.

The rights to survival and healthy development are the most fundamental of children’s rights—they are a predicate to all other human rights. Ameliorative measures for reducing the global rate of child deaths are readily available and cost-effective. Since the 1950s, advances in knowledge, technology, communication, and outreach capacity have contributed to a steady global decline in child mortality. As a result, child deaths worldwide have declined, particularly in many developing countries.¹ Since 1980, oral rehydration therapy (ORT) has prevented 1 million dehydration deaths each year.² Basic immunization has saved the lives of about 20 million children during the past decade.² Clean water and safe sanitation—conditions essential to controlling intestinal infections and diarrhea—are available to more than half of all families in developing countries.^{3,4} The global fertility rate, a principal measure of women’s health and development, has fallen from 6.0 to 3.7 over the past 30 years, thereby lowering under-age-5 mortality rates.^{2,5}

Essential health and social services have further reduced child death rates worldwide, as countries have shared limited resources and integrated basic child health services such as ORT and immunization with health education and family planning services.^{1,6} According to the World Health Organization and the World Bank, a minimum set of essential services, including clinical

services and public health measures, can be delivered in low-income countries for less than \$12 (U.S. currency) per person per year.⁷ Provision of clean water (e.g., one reliable hand-pumped well per 250 people) and safe sanitation (e.g., pit latrines) has become affordable for communities in rural areas. In rural India, for example, access to safe water rose from 30 percent in 1980 to 80 percent in 1992. At an initial investment of \$4 per person, 2.2 million hand pumps now supply safe water to over 550 million people.² And, for less than \$10 per child per year, child malnutrition can be reduced by half through measures such as nutrition education, breast-feeding promotion, and appropriate food and micro-nutrient supplementation.⁸ Even traditionally intractable, poverty-related causes of death in children under age 5 have been abated in recent decades at reasonable cost through a combination of new technologies, falling costs, and community-based strategies.^{1,2}

The Need for Improvement

Although dramatic improvements in child survival have occurred in the past 50 years, health and social benefits have reached only a portion of the world’s children. Every day, 25,000 children under age 5 die from causes that could have been prevented or avoided.^{1,9} Table 1 (page 22) shows the estimated annual deaths among children under age 5 by major causes.

More than 12 million children under age 5 still die needlessly each year from the “diseases of poverty,” including immunizable childhood diseases, malaria, intestinal and respiratory infections, lack of food and clean water, lack of primary health care, and violence. Underlying factors affecting child survival include discrimination, diminished status of women, lack of education, unbalanced allocation of resources, and unsustainable external debts.

Poor people, racial minorities, and indigenous groups suffer disproportionately higher levels of preventable child deaths in every country. Disparate levels of avoidable child deaths reflect a failure on the part of governments to respect and ensure the basic guarantees essential to child survival.

Structural factors such as unbalanced economic development and unsustainable debts continue to produce discrimination, inequity, and slow improvements in child survival worldwide. Without affirmative measures to combat the socioeconomic determinants of health, global child mortality rates will only worsen.

Table 1

Estimated annual deaths among the world's under-5 children by major causes^{8,10,11}

Chronic malnutrition	4.1 million
Pneumonia	3.1 million
Diarrheal diseases	2.9 million
Measles	1.1 million
Malaria	1.0 million
Neonatal tetanus	0.6 million
Whooping cough	0.4 million
AIDS	0.6 million

Despite the enormity of the global child survival problem, assuring all children an equal chance to survive must remain the principal responsibility of individual governments, no matter their level of economic development. The single most significant constraint on improving child survival is the lack of political will on the part of governments, which results in inadequate allocation of resources. A free and democratic society must provide its citizens with certain fundamental rights and basic social goods, or it will risk failure.¹² When children under age 5 are dying from preventable causes such as lack of food and clean water, insufficient living standards, or poor access to primary health care, governments ultimately must be held liable for acts of commission or omission.

Case Study: The United States, Mexico, and Uganda

The Child Survival Project of Minnesota Advocates for Human Rights has been addressing the global problem of preventable child mortality in the context of economic, social, and cultural rights. The project uses a rights-based, case-study approach to examine the child survival situation in three countries of varying levels of development—Uganda, Mexico, and the United States. Analyses of child survival and health in our three case-study countries point to pervasive racial/ethnic, social, and economic disparities in infant and child mortality.

The United States

The infant mortality rate in the United States is worse than the rate in 20 other industrialized countries. In 1994, the overall infant mortality rate was 8 deaths per



PHOTOGRAPH COURTESY OF MINNESOTA ADVOCATES FOR HUMAN RIGHTS

In the United States, disparities in infant and child mortality rates persist among different ethnic groups.

1,000 live births.¹³ Yet gross disparities in infant and child mortality rates persist among different groups, particularly poor children and racial minority children. The mortality rate for infants from poor families is 60 percent higher than that for infants above the poverty level.¹⁴ One in four infants and children under 6 in the United States lives in poverty, and the number of impoverished children is increasing.^{15,16} Black infants die at more than twice the rate of white infants; in 1994, black infants died at a rate of 16 per 1,000, compared with 7 per 1,000 for white infants.¹ The infant mortality rate among black infants in the United States is higher than the rate in 38 other countries, including Cuba, Sri Lanka, Poland, and Costa Rica, all of which have rates of 15 infant deaths per 1,000 live births or lower.¹

Mexico

Among Mexican children, progress in survival and health has not been shared equally by urban and rural areas. In

Table 2

International and regional instruments that protect child survival and health

- Universal Declaration of Human Rights
- International Covenant on Civil & Political Rights
- International Covenant on Economic, Social and Cultural Rights
- Convention on the Rights of the Child (The Children's Convention)
- Convention on the Elimination of All Forms of Discrimination Against Women
- International Convention on the Elimination of Racial Discrimination
- African Charter on Human and People's Rights
- African Charter on the Rights & Welfare of the Child
- American Convention on Human Rights
- Constitution of the World Health Organization

1996, Mexico's child mortality rate was 32 deaths per 1,000 births.¹ Each year, 158,000 Mexicans under age 5 still die from preventable childhood diseases.¹⁷ A disproportionate number of these deaths occur among indigenous and rural children. The disparities between urban and rural child mortality reflect the impact of inequitable socioeconomic development. Two-thirds of the estimated 14 million Mexicans who are extremely impoverished reside in rural areas.¹⁸ Indigenous children are particularly vulnerable to early death. Eight in 10 indigenous people live in poverty, compared with 18 percent in the nonindigenous population.¹⁹ Indigenous populations are generally concentrated in rural municipalities with higher child mortality rates than the national average, ranging from 33 to 41 deaths per 1,000 live births.²⁰

Uganda

Uganda, one of the poorest and most indebted countries in the world, has long had one of the world's highest child mortality rates—147 deaths per 1,000 live births and as high as 190 in the rural northern region.²¹ With Uganda's staggering foreign debt of over \$3.5 billion and a poverty rate exceeding 60 percent, there are simply very few resources at either the national or household level to effectively address the country's basic social needs, including child survival. One in seven Ugandan children still dies from largely preventable causes before age 5. Almost 90 percent of Ugandan families live in rural

areas, where their children are particularly vulnerable to early death.

International Law and Child Mortality

State Parties shall ensure to the maximum extent possible the survival and development of the child.
—Convention on the Rights of the Child, Article 6

The global challenge of reducing preventable child mortality requires state parties (governments) to fulfill their obligations under international law to protect and promote the rights necessary for the survival, development, and participation of children. Some rights affecting child survival, such as the right to health, are contingent on the exercise of other rights, such as the right to an adequate standard of living.

Table 2 lists treaties and other instruments that include obligations to protect child health and survival. (This is not an exhaustive list of all such instruments; rather, those listed are among the most recognized in international human rights law or are relevant for the three countries studied in this report.)

The Convention on the Rights of the Child, or the Children's Convention, is the first comprehensive and universal legally binding code of children's rights. The Children's Convention includes economic and social rights essential to child survival, such as the rights to health, adequate standard of living, and education.²² The Children's Convention is the most widely ratified human rights treaty in history; only Somalia and the United States have not ratified this treaty.

Somalia does not have a functioning government to consider ratification. In the United States, opponents of ratification charge that this act would undermine both national sovereignty and parents' rights. To the contrary, while the Children's Convention establishes a basic framework for children's rights, specific provisions can only be implemented through domestic legislation, ensuring national sovereignty. Moreover, the convention repeatedly emphasizes the primacy and authority of the family.

Governments' Obligations under International Law

Under international law, state parties to international and regional treaties are legally obligated to abide by the provisions of these instruments.^{23,24} Governments have a duty to take steps to reduce child mortality and ensure access to the basic means of survival. Governments are



PHOTOGRAPH BY DAVID PARKER, M.D.

In Mexico, socioeconomic inequities contribute to excessive child mortality.

also obligated to ensure the enjoyment of the rights associated with child survival. The health and well-being of children around the world depend on government recognition of and respect for rights such as the right to health and the right to an adequate standard of living.²⁵

While the United States, Mexico, and Uganda face different obstacles to improving child survival, international human rights instruments provide a uniform set of standards through which different economic and political systems can be evaluated on the issue. Although the United States is the world's wealthiest nation and could protect children in all segments of society, its compliance with international obligations to uphold the health and survival rights of children has been limited. The U.S. Senate has yet to consider ratifi-

cation of the Children's Convention.

Although the Mexican government has ratified international treaties relevant to child survival and health, Mexico has not effectively complied with its international obligations for the right to life, health, and nondiscrimination. Persistent socioeconomic inequities, which contribute to excessive and preventable child mortality rates, are exacerbated by the government's economic and structural adjustment policies geared toward globalization.

Uganda's laws and policies place a priority on child welfare. The Ugandan government, however, faces enormous structural constraints on effectively realizing children's rights to health and survival and on allocating the maximum available resources for primary health care.

Many of the world's poor countries are overwhelmed by multilateral debts, which continue to impede the social development necessary to meet the essential needs of their populations. Poverty reduction measures are undercut by debt repayment obligations, which lay claim to large proportions of export earnings and bilateral aid. In Uganda, one of the poorest and most indebted countries, external debt repayment is almost 10 times the level of public spending on primary health.²⁶

The IMF-World Bank's Debt Initiative for Highly-Indebted-Poor-Country (HIPC) is an important strategy for addressing the unsustainable debt burden of developing countries. This multilateral debt initiative enables poor countries to use potential savings from debt relief for targeted priority development areas, particularly in the social sector. Up to 20 low-income, severely indebted countries, including Uganda, are eligible. While the HIPC initiative represents significant progress in resolving the debt crisis in the poorest countries, much more can be done. Many more countries would benefit from inclusion in the initiative, and debt relief could be made conditional to ensure that the savings would be transferred to social welfare investments, particularly in basic education, primary health, and other poverty reduction measures.

Human Rights Law and Child Survival

Human rights enforcement can promote child survival. At national and local levels, laws, policies, and programs can be assessed in light of a state's international human rights obligations. At the international level, advocates can use international and regional bodies such as the Committee on the Rights of the Child and UNICEF in two ways. Advocates can present information about a country's compliance with its obligations under interna-



Because Uganda, one of the poorest countries in the world, is overwhelmed by debts, child welfare suffers.

tional law, and they can propose international assistance and intervention. By monitoring and reporting governments' performance standards for improving child survival, a rights-based strategy can advance provisions for health and well-being, including food, water, health, employment, housing, and education.

Preventable child deaths result from the denial of basic rights to nondiscrimination, health care, adequate standard of living, and education. Full compliance with human rights treaties already in place, particularly the International Covenant on Economic, Social and Cultural Rights and the Children's Convention, would improve the outlook for the survival and welfare of the world's children.

MM

Huy Pham is the Children's Rights Program director and Mary Marrow is a legal fellow at the Minnesota Advocates for Human Rights.

The Child Survival Project recently issued a report, Global Child Survival: A Human Rights Priority, which can be ordered through Minnesota Advocates for Human Rights, 310 Fourth Avenue S., #1000, Minneapolis, MN 55415. Phone: 612/341-3302; e-mail: hrights@mnadvocates.org.

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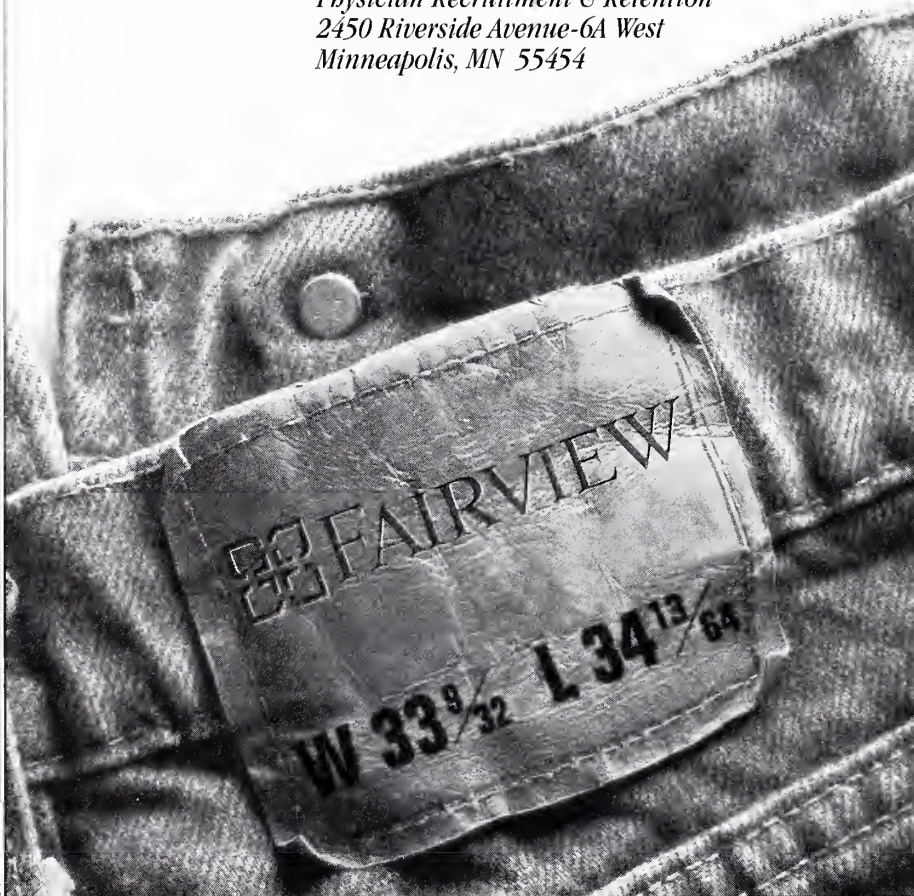
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Innocents Abroad?

The Ethics of International Research

U.S. researchers conducting studies overseas should guard against the potential for exploiting the less fortunate citizens of developing countries.

Jeffrey Kahn, Ph.D., M.P.H., and Anna Mastroianni, J.D., M.P.H.

Today's global economy has enabled medical researchers to cross international boundaries to study health problems of worldwide concern. But with greater access comes a greater potential for exploitation. Although disease has no respect for national borders, United States researchers conducting investigations overseas must be sensitive to the ethical issues raised by their work.

What standards of comparison are appropriate for control groups—the standard of care in developed countries or the local standard? Should U.S. researchers perform research requested by local governments abroad that would be considered “substandard” if performed in this country? Is such research exploitative? Does it matter whether research results are used to benefit local populations, U.S. populations, others, or some combination? These issues will continue to be hotly debated as we search for ethically acceptable answers to these questions. In this article, we outline the current debate on international research and some approaches for its resolution.

Standard of Care: Different in Different Places?

The presumption in medical research is that when efficacious treatment is available, it is unethical to use protocols that withhold standard of care in any of the research arms. But research outside the United States often occurs in settings where the standard of care in the developed world is unavailable and largely unattainable because of cost or other obstacles. So an ethical issue arises over whether research should be measured against treatment known to be effective (if unattainable), or against the level of (potentially ineffective) treatment that meets the local standard.

The recent trials of short course AZT therapy for prevention of vertical transmission of HIV from mother to fetus during pregnancy, studies that involved U.S. researchers, prompted attention to this issue. In some of these trials, performed in Africa, Asia, and Latin Amer-

ica, the short course regimen was tested against a placebo. This study design was approved even though it had been shown that a regimen involving AZT during pregnancy, labor, and administered to newborns—known as the “076” regimen—reduced the incidence of HIV infection of infants by two-thirds.¹

One reason the short course trials were given the green light by U.S. institutions was that in the countries where the research was carried out, pregnant women infected with HIV would have been unlikely to receive even basic prenatal care, let alone treatment to prevent vertical transmission of HIV. Thus, it was argued that use of placebo control was ethically acceptable, since assignment to the placebo group would “not carry a risk beyond that associated with standard practice.”² But if we are ethically required to provide existing “standard of care” to the control group, can placebo ever be considered standard care?

Research Questions Shaped by Local Realities

We know that the 076 regimen is effective, and it has become standard of care in the United States and other developed countries. But at more than \$800 per patient, 076 is so expensive as to be out of reach for widespread use in nearly every developing country, as well as for some people in the United States. And while we could not justify placebo controls in a vertical transmission trial in this country, the realities of health care resources in Minnesota, USA, are vastly different from those in Bangkok, Thailand. So to examine a new approach against 076 for application in Thailand is to ask the wrong research question. It may be better to compare the available treatment (which may sometimes be nothing) against a new and potentially affordable treatment. Such an argument justifies the use of placebos or some other “substandard” care to identify treatment that is both effective and affordable.

Peter Lurie and Sidney Wolfe object to this argument, however, saying that to claim that acceptable standards

of care are shaped only by local conditions is to confuse optimal medical care with the quality of the local health care infrastructure.³ The trials would not be approved in U.S. populations. Thus, to apply the local standard of care creates incentives to find research subjects with the least access to health care, instead of focusing on research that will best serve those in need.

Certain study designs may achieve some middle ground. For example, rather than relying on the "gold standard" of placebo-controlled trials, recent studies of vertical transmission of HIV in Thailand have used control groups that received active treatment so that all participants have a chance to receive some therapeutic benefits while in the study, and the research still yields some information about the effectiveness of the treatment.

Who's Exploiting Whom?

A health official in Uganda reportedly wrote the following to the director of the National Institutes of Health (NIH) regarding concerns that HIV vertical transmission trials in his country were exploitative: "It is not NIH conducting studies in Uganda but Ugandans conducting their study on people for the good of their people," with the support of NIH.² If exploitation occurred, who exploited whom?

Exploitation means taking advantage of the circumstances of others. But to presume that foreign governments cannot understand the ethics of research on their populations obviously sells them short. By the same token, it would be wrong to export research that could not ethically be carried out in the United States to countries more desperate for research benefits.

Even when the proposed research protocol is ethically acceptable, ensuring that subjects' participation is truly voluntary is difficult. Research that includes health care may be so enticing in populations lacking access to even basic care that individuals will view research participation as beneficial even when it includes placebos. Adding the challenge of informed consent in cultures that do not accord self-determination the same importance as our society does calls into question some of the basic tenets of ethical research. Additional avenues for exploitation are opened when the research results that are intended to benefit local populations are imported into treatment regimens in the United States, raising the question of why these trials weren't performed in the United States in the first place.

Conclusion

International research creates opportunities to bring together the brightest research minds, regardless of nationality, to tackle global health problems. At the same time, limits on access to health care, economics, and social settings can lead to potentially unfair use of foreign populations for the benefit of those who are better off. Research subjects in developing countries are among the study populations most in need of protections. Only research that offers the prospect of direct benefit to the

subjects or to the other members of their population ought to be approved, and study designs must plan for effective local implementation and dissemination of research findings.

Only with ethically sensitive research practices can we avoid exploiting the less fortunate citizens of developing countries. It is difficult to justify research abroad when the benefits are primarily sought for our own country. But when the primary reason for research is to aid local populations and the research is done in consultation with local representatives, secondary benefits to others can be acceptable.

With the means to carry out research comes the responsibility to do so ethically. The history of unethical research, here and abroad, has taught us that no level of benefits can justify the unethical treatment of research subjects, whether those subjects are in our own hospitals or in clinics halfway around the world. Appropriate oversight, public discussion, and open debate are the best ways to ensure that these values are honored. **MM**

Jeffrey Kahn is director of the Center for Bioethics at the University of Minnesota. Anna Mastroianni is an assistant professor at the School of Law and Public Health Genetics Program at the University of Washington.

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Helping Victims of Landmines

A Public Health Approach

Standardized survey tools are essential to measure the magnitude of the devastation caused by landmines.

Adam Kushner, M.D., and James Cobey, M.D.

In the early 1990s, at a district hospital in southern Cambodia, trauma surgeon James Cobey, M.D., a volunteer for the American Red Cross and Physicians for Human Rights (PHR), saw two or three patients with landmine injuries each week. These patients, he knew, were lucky to be alive.

They were also lucky to find a surgeon available to take care of their wounds. Cobey is amazed that the death rate from mines is only 50 percent, since good care may not be available. Many provincial hospitals have only irregular electricity, so doctors sometimes have to use flashlights when exploring a wound. Clean water is often a luxury. Patients may have to buy ether for anesthesia and pay donors to give blood.

As Cobey has seen firsthand, landmines cause enormous devastation. Hundreds of thousands of men, women, and children live in fear of these indiscriminate weapons. It is estimated that one person is killed or injured by a landmine every 22 minutes—70 victims each day, 26,000 victims a year. In addition to individuals' suffering and trauma, whole communities are burdened by the deadly legacy of landmines, which leave psychological as well as physical damage. Populations face malnutrition and starvation when arable fields must remain barren and water sources are inaccessible. Access to medical care and vaccinations is limited if public health workers cannot reach a community. Children may risk growth retardation from nutritional deficiencies or contract preventable diseases such as polio. Psychological damage for landmine survivors includes loss of self-esteem, social stigma, and disgrace for those who feel they cannot marry because of their disfigurement.

On March 1, 1999, the Mine Ban Treaty, which bans the use, stockpiling, and transfer of landmines, became binding international law. To date, 135 countries have signed the treaty and 81 countries have ratified it. Every country in the Western hemisphere except the United States and Cuba signed, as did all members of NATO except the United States and Turkey. Our refusal puts us in the same company as Iraq, Libya, North Korea, China, and Russia. The U.S. government has not signed the

treaty because it says it needs to use landmines on the North Korean border.

The treaty preamble requires state parties to do "their utmost" in providing assistance to landmine survivors. Article 6 of the Mine Ban Treaty calls on governments in a position to do so to help with the care, rehabilitation, and social and economic reintegration of mine victims. This aspect of the treaty has particular significance for the medical community.

An estimated \$3 billion will be needed for the care and rehabilitation of landmine victims over the next 10 years. Costs include medical services, prosthetic equipment, social reintegration, and rehabilitation for thousands of victims.

Guidelines published by the International Campaign to Ban Landmines (ICBL)—composed of representatives from 1,300 organizations in 80 countries—cover all aspects of treatment for landmine survivors, from injury through rehabilitation. The guidelines discuss emergency medical care training, proper amputation procedures, and reconstructive surgery. Other provisions call for safe, durable prosthetic devices; psychological and social support for families of survivors; employment and economic integration of people who are disabled; national legislation promoting effective treatment, care, and protection; access to all buildings and public places; and protection from discrimination.

Using Epidemiological Tools to Assess Landmine Damage

In 1991, James Cobey surveyed landmine victims in Cambodia and learned that one of every 236 Cambodians was an amputee because of a landmine. That figure helped galvanize a public call for a ban on landmines. Since then, PHR has spearheaded the development of standardized survey tools for measuring the magnitude of the landmine problem. Epidemiological studies that use scientific methodologies will allow for a more accurate and consistent evaluation of the landmine problem.

Physicians for Human Rights is preparing to field-test standardized assessment tools such as hospital

surveillance and community surveys in Azerbaijan, a country with an estimated 100,000 landmines. These tools were developed with input from experts at the World Health Organization, the International Committee of the Red Cross, Johns Hopkins University School of Public Health, and Columbia University School of Public Health, as well as landmine survivors.

Survey data will provide information on morbidity and mortality associated with landmine injuries. The surveys will also collect information about demographics, device type, the incidence and prevalence of landmine injuries, and the capacity of hospitals and rehabilitation centers caring for landmine victims. Such data will allow ministries of health and nongovernmental organizations to set priorities and develop and implement programs to assist landmine victims. The information will also help in fund allocation, program evaluation, and follow-up.

Some Progress

This spring, the International Campaign to Ban Landmines met in Maputo, Mozambique, to assess implementation of the Mine Ban Treaty. At the meeting, the groundbreaking Landmine Monitor Report, a series of

annual reports and a central database of landmine information, was introduced. Landmine Monitor is a systematic way to document the progress and problems of treaty implementation.

The initial report showed substantial progress in implementing the Mine Ban Treaty during the past year. According to Stephen Goose, the head of the ICBL delegation in Maputo and chief editor of Landmine Monitor, "We have seen a distinct decrease in global use and production, transfer, and stockpiling of antipersonnel mines. The number of mine victims is decreasing in such high-risk places as Afghanistan, Bosnia, Cambodia, Mozambique, and Somaliland. ... Mines are clearly no longer being used automatically and without consideration of the humanitarian consequences."

The report also notes that at least 38 nations have stopped production of antipersonnel mines; just 16 nations continue to produce mines. MM

Adam Kushner is a general surgery resident in Philadelphia. James Cobey is an orthopedic surgeon practicing in Washington, D.C. They represented Physicians for Human Rights and the International Campaign to Ban Landmines at the Maputo conference.

A Minnesota Campaign to Ban Landmines

The major producer of landmines in the United States, Alliant Techsystems, is based in Hopkins, Minnesota. Alliant was the primary producer for the two most recent mine contracts for Gator and Volcano mine systems. Nineteen of the U.S. companies that manufacture antipersonnel mines, components, or delivery systems have agreed to renounce any future involvement in mine production, but Alliant is not one of them. Motorola was the first and most visible company to do so, in June 1996. Others include Hughes Aircraft, Olin Ordnance, Kemet, Microsemi, AVX, and Dyno Nobel. Companies that have not renounced future involvement in mine production include General Electric, Lockheed Martin, and Raytheon, in addition to Alliant.

According to Human Rights Watch, Alliant Techsystems has received a contract to help the Pentagon develop alternatives to antipersonnel mines. These alternatives might include a new "mixed mine system" called RADAM, which is a canister containing an antitank mine and an antipersonnel mine. Such a device is prohibited by the Mine Ban Treaty, which bans the use, stockpiling, and transfer of landmines. If funding is approved, it is expected that Alliant will produce this weapon. The funding has thus far been defeated by the U.S. Senate and will be taken up by the House this summer.

The Minnesota Campaign to Ban Landmines (MCBL) is working to stop Alliant from producing RADAM. Since May 1996, MCBL members have conducted weekly vigils—picketing, chanting, and handing out literature—at Alliant Tech and have

picketed at the company's annual shareholders meetings.

The MCBL is part of the International Campaign to Ban Landmines and the U.S. Campaign to Ban Landmines. The MCBL was founded in 1996 by the Rev. Jim Ketcham of Church World Service, David Gagne of Fellowship of Reconciliation and Community of St. Martin, and Susan B. Walker of Handicap International and the current co-coordinator of the ICBL.

Another of MCBL's major efforts is to lobby the U.S. government to sign the Mine Ban Treaty, which became binding international law on March 1, 1999. Members of the organization have spoken at churches, conferences, colleges, high schools, and elementary schools; organized letter-writing campaigns; produced buttons, fliers, and banners for the Mine Ban Treaty meeting in Ottawa and the Nobel Peace Prize ceremony in Oslo; written articles for newsletters and community newspapers; conducted press interviews; lobbied local and state elected officials; and organized events to mark the treaty's entry into law.

To join the MCBL, contact John Harmon or Dee Logan at 612/788-8727, John Harmon at johnharmon@juno.com, or Susan Walker at 612/925-9418 or walker@icbl.org. Meetings take place the second Monday of every month at St. Martin's Table in Minneapolis.

PHR is leading the Stop RADAM campaign. For more information, please contact Jennifer Logan at 617/695-0041, extension 208, or jlogan@phrusa.org.

For more information on the ICBL or Landmine Monitor, please visit www.icbl.org. For more information on Physicians for Human Rights, please visit www.phrusa.org.

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ANNOUNCEMENTS



MMA Represented at AMA Annual Meeting

Minnesota delegates who attended the AMA Annual Meeting included: A. Stuart Hanson, M.D., chair; Robert D. Christensen, M.D.; Frank J. Indihar, M.D.; Carolyn J. McKay, M.D.; Audrey M. Nelson, M.D.; Ben P. Owens, M.D.; and Andrew J. K. Smith, M.D.; and AMA alternate delegates: Raymond G. Christensen, M.D.; Kenneth W. Crabb, M.D.; Anthony C. Jaspers, M.D.; Lyle Munneke, M.D.; Thomas L. Peyla, M.D.; Sally Trippel, M.D.; and John Van Etta, M.D. C. Randall Nelms, M.D., an MMA past president, represented the American Academy of Otolaryngology-Head and Neck Surgery on Reference Committee B, the committee concerned with legislation.

Sally Trippel, M.D., chair of the MMA Committee on Public Health, sat on Reference Committee G, which dealt with resolutions related to managed care.

AMA Delegates Vote to Create Union

The Minnesota Medical Association delegation attending the 148th Annual Meeting of the American Medical Association House of Delegates in Chicago June 20-24 witnessed an historic event: the vote to create a national AMA-affiliated labor organization for employed physicians and residents and fellows who are authorized by current law to collectively bargain.

Having the AMA form a collective bargaining unit was the most contentious proposal debated at the meeting. After extensive discussion, a majority of the AMA's 494-member House of Delegates voted to support a series of recommendations aimed at developing an option for physicians who feel increasingly disenfranchised in the health care delivery system.

The MMA has not developed

policy on physician unions.

After the vote was tallied June 23, AMA President-elect Randolph D. Smoak, Jr., M.D., said, "This [union] is not for all physicians. This will not be a traditional labor union. Doctors will not strike or endanger patient care. We will follow the principles of medical ethics every step of the way. No other organization can make that promise to the patients of America—and keep it."

Smoak said that by mid-July the AMA will report a full action plan to create a labor organization for the medical profession that addresses the concerns of all American physicians. The action taken at the annual meeting directs the AMA to create a national labor organization, under the National Labor Relations Act, as an option for em-

UNION cont. on page 35

MMA Supports Quality Care Bill

Delegates attending the American Medical Association 1999 Annual Meeting in Chicago took time out of their duties June 23 to contact their congressional representatives on an important bill being heard that day before the U. S. House Judiciary Committee.

The MMA joins the AMA in supporting H.R. 1304, the Quality Health Care Coalition Act of 1999, sponsored by U.S. Rep. Tom Campbell (R-Calif). This federal legislation would help level the playing field between giant health care insurers and physicians. E. Ratcliffe Anderson, Jr., M.D., execu-

tive vice president and CEO of the AMA, on June 23 testified before the House Judiciary Committee that anti-trust laws must be reformed to restore physicians' ability to act effectively as patient advocates.

The MMA has written to the Minnesota congressional delegation urging support of H.R. 1304. U.S. Rep. Collin Peterson (DFL-Minn.) has agreed to be a co-sponsor of the bill, along with 116 other Republican and Democratic representatives.

CARE cont. on page 35

VIEWPOINT

Judith F. Shank, M.D.
MMA President



Physicians in the Herb Garden of Good and Evil

How should we react to the growing fascination with herbal remedies? As I read the May issue of *Minnesota Medicine*, which focused on the benefits and drawbacks of herbal products, I reflected on the dilemmas we face.

One of my patients who is very enthusiastic about herbal remedies asked me to meet her naturopath and work with her on a joint treatment plan. I had to say no. Physicians are held to a higher standard of care. We take an oath, "to do no harm." And there is no guarantee that herbs sold as food supplements are pure or harmless.

This would come as a surprise to many people. How can herbs be harmful? They're "natural." Of course, so are botanical poisons, including deadly nightshade. But when herbal remedies are reassuringly available in grocery stores, pharmacies, and health food stores, it's not surprising that some people think they are safer than rigorously tested prescription drugs that come with a list of possible side effects.

We physicians understand the hazards. I tell my patients that herbal remedies sold as food supplements

are not held to the same strict standards as prescription drugs that must be approved by the Food and Drug Administration. There is a risk that the product may be toxic, and there's no guarantee of its content, intensity, or purity.

Even if the herb itself is safe, there's no way of knowing if the manufacturer has added other ingredients, either accidentally or on purpose. Some products marketed as food supplements and over-the-counter treatments have been spiked with real medicine to improve their efficacy. No wonder these products work.

One example is Skin Cap, or zinc pyrithione, which was sold as a treatment for psoriasis. After it was on the market for a year, the Mayo Clinic found out why Skin Cap worked so well; it contained clobetasol, a potent topical steroid. At that point, the FDA pulled the product off the market.

Clobetasol is very effective, but it should be used only under prescription. This medication can cause thinning of the skin and, if used over a wide skin area, can have a systemic effect. If it is used too long or in the

wrong places, it can cause skin atrophy. When we prescribe this medicine, we carefully monitor its use. Following FDA withdrawal of the product, some people who had been using it developed pustular psoriasis.

In addition to uncertainty about the purity of herbal remedies, there is the possibility of interaction with other herbs and prescription drugs. Some senior citizens who were taking ginkgo to improve their mental functioning started to bleed. It turned out that they were also taking blood thinners such as aspirin or Coumadin that combined with ginkgo's anti-platelet effect.

Despite the growing popularity of products and practices that are seen as "natural," we are perfectly justified in upholding a scientific approach to medicine and refusing to endorse untested herbal remedies. In fact, it is our responsibility as our patients' advocate. There is no need to be disparaging about these products, but it is important that we alert our patients to potential dangers. ■

UNION *cont. from page 33*

ployed physicians and residents and fellows who are authorized under current law to collectively bargain. This includes only a fraction of practicing physicians, according to the AMA.

"An affiliated labor organization not only broadens the range of tools doctors can use, but it strength-

ens the value of all the other tools we are using," Smoak said. "Throughout our 152-year history, AMA physicians have been able to make tremendous advancements in medical care and physician practice by joining together. We expect nothing less in this new endeavor." ■

Highlights of the AMA House's Actions

- A directive that all AMA activities regarding physician negotiation maintain the highest levels of professionalism and be consistent with the AMA's Principles of Medical Ethics and the Current Opinions of its Council on Ethical and Judicial Affairs.

- Approval for the immediate creation of a national labor organization, under the National Labor Relations Act, as an option for (a) employed physicians, and (b) residents and fellow physicians who are authorized under current law to collectively bargain.

- Continued support for the development of independent housestaff organizations for residents and fellow physicians. And the additional directive that the AMA be prepared to move ahead with a national labor organization in the event the National Labor Relations Board gives residents and fellows approval to collectively bargain under the National Labor Relations Act.

- Support and reinforcement of mechanisms for the Accreditation Council for Graduate Medical Education to address and resolve resident issues at the

program and institutional levels.

- Continued vigorous support for antitrust relief for physicians and medical groups and the creation of a national organization to support development and operation of local negotiating units. These units would provide an option for self-employed physicians and medical groups consistent with the provisions of the Quality Health Care Coalition Act of 1999 (H.R. 1304), or similar federal legislation, when enacted.

- A call for the AMA to work aggressively for antitrust relief with the U.S. Department of Justice and the Federal Trade Commission and for the AMA to help state medical associations achieve their own "state-action doctrine" legislation.

- Approved expansion of the AMA's private sector advocacy programs, including initiating litigation, stopping egregious health plan practices, and helping physicians level the playing field with payors.

- Authorized programs to educate members and non-members about the possible limit on benefits and the risks to the formation of a national labor organization, concurrent with its creation. ■

CARE *cont. from page 33*

The MMA received a firsthand briefing on the bill during a conference call with Campbell and Randolph Smoak, Jr., M.D., chair of the AMA Board of Trustees.

H.R. 1304 is an antitrust bill that will help return medical decision-making to patients and their physicians, Campbell said. He explained that the Federal Trade Commission and the Department of Justice take the position that it is illegal for self-employed physicians who independently contract to provide services for a health plan to bargain collectively with the health plan.

H.R. 1304 would allow health care professionals to negotiate collectively with health plans.

"What it does is very simple," said Campbell. "It gives to medical professionals the same right to present their united front that the insurers have when you go in bargaining with an HMO."

According to Dave Renner, MMA director of state and federal legislation, the bill removes legal barriers so that self-employed physicians could engage in joint negotiations with health plans.

"The Campbell bill prohibits price fixing and prohibits physicians from striking," said Renner. He added that the MMA and AMA, whose delegates voted on June 23 to form a labor organization, support H.R. 1304 and are working diligently for its passage.

Rep. Campbell expressed confidence that there is broad bipartisan support for the bill in both the House and the Senate. ■

E&M Guideline Recommendations Sent to HCFA

In 1998 the Health Care Financing Administration (HCFA) requested recommendations on revisions to its documentation guidelines for evaluation and management (E&M) codes. The E&M codes are used to report physician visits, consultations, and similar services.

The Minnesota Medical Association has submitted its recommendations to the AMA. On June 1 the AMA sent these recommendations, with others received from more than 200 medical organizations and individual physicians, to HCFA.

"The recommendations would create simpler, patient-centered, and clinically relevant guidelines that are better suited to the realities of physician practice than the HCFA guidelines in use today," said Robert A. Musacchio, Ph.D., AMA senior vice president for membership and information services, in a federation

alert regarding the E&M guidelines revision process.

The recommended changes include:

- Emphasizing clinical communication as the primary role of the medical record and the need for confidentiality.
- Making revisions to the history, examination, and medical decision-making guidelines components.
- Revising body system examination elements in the draft guidelines in response to specialty and other requests.
- Identifying ways to reduce the role of "counting" of examination elements by emphasizing the importance of the actual Current Procedural Terminology definitions and of using all pertinent information in the medical record that bears on the level of E&M code.

HCFA expects to undertake pi-

lot testing before any new guidelines are implemented in final form. HCFA is targeting early next year for the implementation of the new guidelines to allow time for review and conducting pilot tests. In the meantime, HCFA's current policy requires physicians to comply with either the 1995 documentation guidelines or the 1997 version, whichever works to the physician's advantage.

The E&M guideline revision recommendations are available on the AMA's E&M Web site at <http://www.ama-assn.org/emupdate>. ■

MMA Helps State Plan for Flu Pandemic

The Minnesota Medical Association participated in an all-day planning session on June 9 to help the Minnesota Department of Health prepare a state plan for the control and prevention of a possible influenza pandemic.

Three influenza pandemics have occurred in the 20th century, causing sudden severe illness throughout the world. Many experts believe another influenza pandemic is inevitable.

Raymond Strickas, M.D., of the Centers for Disease Control outlined federal responsibilities, including vaccine development and the coordination of national and international surveillance. State plans would be triggered by an alert from the CDC.

At the planning meeting, Sally Trippel, M.D., chair of the MMA Committee on Public Health, served on the surveillance team and Lorrie Holmgren, MMA director of communications, on the communication team.

Plans for a flu pandemic could also serve if there is an act of bioterrorism. ■

MMA Offers Credit Union

The MMA is now offering credit union services to employees of medical practices that have at least one MMA member. The MMA, through its business partner Minnesota Medical Business Resources (MMBR), selected IBM Mid America Employees Federal Credit Union because, like the MMA, it is 100 percent member-owned and so has the highest degree of customer service.

MMBR provides products and services for physicians and their clinics and is jointly owned by the Minnesota Medical Association and the Hennepin Medical Society. According to Barry Weber,

MMBR president, IBM Mid America Employees Federal Credit Union offers even small employers the opportunity to give their employees the benefit of belonging to one of the top two credit unions in the state. IBM Mid America Employees Federal Credit Union has more than \$640 million in assets and over 76,000 members.

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NEWS DIGEST

*People and places
making medical news*



People & Places

Tony Jaspers, M.D., a family physician from Lake Crystal, is one of 11 finalists nationwide for the 2000 AAFP Family Physician of the Year Award. The award honors a family physician who represents the highest ideals of the specialty of family medicine, including caring, comprehensive medical service, and community involvement. The American Academy of Family Physicians, an 88,000-member organization of family physicians, family practice residents, and medical students, chooses the recipient. The winner will be announced in September.

Ashley Haase, M.D., professor and head of the University of Minnesota Department of Microbiology, has been appointed a Regents professor of the University of Minnesota. The university has only 20 Regents professors at a time. To be eligible for consideration, professors must be nominated by their colleagues, who submit letters from peers and former students. A Chicago native, Haase received a medical degree from **Columbia College of Physicians and Surgeons** in New York City. Haase was a professor of medicine and microbiology at the **University of California, San Francisco**, from 1971 to 1984, before joining the University of Minnesota Medical School faculty.

Tanya L. Repka, M.D., an internist and oncologist in Minneapolis, has become governor for the Minnesota chapter of the **American College of Physicians–American Society of Internal Medicine**, the nation's largest medical specialty organization, based in Philadelphia. The Minnesota chapter has more than 1,500 members. Repka is director of the Division of Hematology and Medical Oncology at **Hennepin County Medical Center** and a physician volunteer for the Race for the Cure.

Medical students at the **University of Minnesota** selected **Tom Stillman, M.D.**, and his son, **Martin Stillman, M.D.**, as recipients of outstanding teacher awards. Tom Stillman, director of undergraduate medical education and associate director of graduate medical education for the **Department of Medicine at Hennepin County Medical Center (HCMC)**, received the outstanding clinical teacher award for the fourth consecutive year. Martin Stillman, who is in his second year of a residency in internal medicine at HCMC, received the outstanding resident teacher award. The awards are sponsored by the **Minnesota Medical Foundation**.

Park Nicollet Clinic HealthSystem Minnesota selected David

Parker, M.D., an occupational medicine physician at **Park Nicollet Clinic**, to receive one of its 1999 Community Service awards. The annual awards honor individuals who have made significant, long-term contributions to the community. Parker, who has examined and documented the practice of child labor for the past eight years, in 1997 published *"Stolen Dreams: Portraits of Working Children."* The book received a Christopher award for a work "affirming the highest values of the human spirit." Parker also received a Minnesota Book Award for Children's Nonfiction. (An article by Parker on human rights appears on page 42.)

The **Institute for Research and Education HealthSystem Minnesota** named **John Schousboe, M.D.**, Researcher of the Year. Minnesota family practice physician **Michael Dukinfield, M.D.**, and psychologist **Joseph Nelson** were named Educators of the Year. Schousboe, who joined **Park Nicollet Clinic** in 1987, is a rheumatologist and assistant director of research at the **Rheumatology Treatment and Resource Center at Park Nicollet Clinic** in St. Louis Park. Dukinfield joined **Park Nicollet Clinic** in 1982. He practices part time at **Hopkins Family Phy-**

sicians and is an associate professor in the **University of Minnesota/HealthSystem Minnesota Family Practice Residency** program. He is also the medical director at **St. Louis Park Plaza Nursing Home**. Nelson joined **Park Nicollet** in 1983 and works in the **Sexual Health Center**.

HealthEast Care System chose **Robert D. Gill** as the organization's

new vice president/chief financial officer. Gill is a CPA with an extensive background in health care financial management and "Big Eight" public accounting/consulting within the health care industry. Most recently he worked for six years as vice president/finance and chief financial officer at **Southern California Healthcare Systems**, the

largest integrated health care delivery system in the San Gabriel Valley. **HealthEast Care System** is the largest network of health care services in the eastern Twin Cities metro area.

Abdhish Bhavsar, M.D., was elected president of the **Minneapolis Ophthalmological Society** for 1999–2000. Bhavsar practices at **Retina Center** in Minneapolis and Maplewood. ■



Socioeconomics

U of M Physicians Sign Contract with BHCAG

Starting next year, the **Buyers Health Care Action Group (BHCAG)** will include the **University of Minnesota Physicians** in its clinic network, according to an agreement announced in June. "I believe that our ability to show that we can compete effectively in the **Buyers Health Care Action Group** care system model could have a halo effect with other health care payers about our ability to compete effectively," said **Lisa Jetland**, executive director of the 450-member physician group, in a *Star Tribune* article.

BHCAG began contracting directly with clinic groups two years ago. The university physicians group restructured about five years ago, combining 20 separate departments of physicians into a single administrative office. The move was an effort to attract managed care networks.

'U' Adds Alternative Medicine Program

The **University of Minnesota** will offer the nation's first graduate-

level minor in alternative medicine beginning this fall, marking a change in the university's previously traditional philosophy. **Frank Cerra, M.D.**, head of the **Academic Health Center** at the university, said the goal of the program is twofold. It will aim to teach about popular treatments as well as how to evaluate them. The program is being led by **Mary Jo Kreitzer**, director of the university's **Center for Spirituality and Healing**. "I think it does reflect that this whole area of complementary, alternative medicine is a legitimate area of both inquiry and practice," she said in a *Star Tribune* article.

New Hospital Planned for Hudson

Hudson Medical Center, **Western Wisconsin Medical Associates**, and **HealthPartners** have formed a relationship among hospitals, doctors, and a Minnesota consumer-governed nonprofit health plan that will result in a new hospital in **Hudson, Wisconsin**. The three organizations will maintain their independence despite shared commitments and governance. Their common goal is to provide **Hudson** and the surrounding community with continually improving health care and med-

ical services. The affiliation has also resulted in a management contract between **Hudson Medical Center**, a 49-bed community hospital, and **Regions Hospital** in **St. Paul**, which is part of the **HealthPartners** family of health care organizations. The future hospital and health campus will be located at **Interstate 94** and **Carmichael Road**.

Children's Hospitals and St. Francis Form Pediatric Care Partnership

Under an agreement announced in mid-May, **Children's Hospitals and Clinics** will manage inpatient pediatric services at **St. Francis Regional Medical Center** in **Shakopee**. "We know that if we want to take care of children we have to do a better job of doing it where they live," said **Phil Kibort, M.D.**, a vice president for system advancement at **Children's**, in an article in the *Minneapolis Star Tribune*. The arrangement will enable **St. Francis**, which is jointly owned by **Allina Health System** and the **Benedictine Health System**, to serve the particular needs of its pediatric patients better. "Children are not small adults. They have very specialized needs as patients," said **Venetia Kudrle**, president of the hospital. ■



Research & Innovations

National Breast Cancer Drug Study Seeks Volunteers

Fifteen clinics in the Twin Cities and four outside the metro area will take part in the five-year Study of Tamoxifen and Raloxifene (STAR). The breast cancer prevention study, one of the largest ever, will involve 22,000 women and 440 medical centers. In an article in the Minneapolis *Star Tribune*, Richard Zera, M.D., researcher at the Hennepin Consortium in Minneapolis, said, "Studies of raloxifene suggest it has the potential to prevent breast cancer. The only way to prove that potential is to do a clinical trial in which the risks and benefits of raloxifene are directly compared with the risks and benefits of tamoxifen." Tamoxifen has been shown to cut the incidence of breast cancer in women at high risk for the disease, but it has serious side effects, including increased uterine cancer rates. Although it has only been on the market for a year and a half, raloxifene, an approved treatment for osteoporosis, does not seem to raise uterine cancer rates.

Volunteers in the study will be given either 20 mg of tamoxifen or 60 mg of raloxifene every day for five years. More information about the STAR study is available from the National Cancer Institute (800/422-6237).

Mayo Clinic Study Shows Body Piercers May Risk Serious Infection

In a survey of 445 people who had

congenital heart disease and body piercing, researchers at the Mayo Clinic in Rochester, Minnesota, found an almost 25 percent rate of infection from the piercing. Infections can be potentially life-threatening in congenital heart disease patients. Cardiologist Carol Warnes, M.D., chief investigator in the study, said in an article in the *Star Tribune* that prophylactic antibiotics at the time of piercing may help prevent some infections.

Poultry Antibiotics Implicated in Human Infections

Antibiotic-resistant bacterial intestinal infections in Minnesotans have risen because of poultry treated with antibiotics, according to a study by Minnesota Health Department researchers. Veterinarian and epidemiologist Kirk Smith, lead author of the study, which was published in the May 20 *New England Journal of Medicine*, said in a *St. Paul Pioneer Press* article that the research offers clear evidence that giving antibiotics to animals causes health problems in people.

Campylobacter jejuni, the bacterium examined in the study, is the most commonly recognized cause of bacterial gastroenteritis in this country, according to the study, which appeared in the May 20 *New England Journal of Medicine*. The symptoms, which usually include diarrhea and a fever, typically disappear within a week but can become more serious in the elderly and in those with impaired immune systems.

Common sources of the infection are undercooked poultry and contaminated water. When treatment is required for the infection,

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the fluoroquinolone class of antibiotics is a common choice. In 1995 these same antibiotics received U.S. approval for treatment of respiratory illness in poultry in the United States. The Minnesota Health Department data showed an increase in the number of fluoroquinolone-resistant infections from domestic sources from 1996 through 1998.

Smith and his co-author, Michael Osterholm, former state epidemiologist and current CEO of the Infection Control Advisory Network in Eden Prairie, said the study shows

the need for greater regulation of the use of antibiotics.

Mayo Clinic Survey Finds Most Prophylactic Mastectomy Patients Satisfied with Surgery

A follow-up study of 572 women at high risk for cancer who underwent bilateral prophylactic mastectomy between 1960 and 1993 showed that almost 70 percent would make the same choice again. As reported in the *Star Tribune*, Lynn Hartmann, M.D., an oncologist at the Mayo Clinic, said the survey found that

“the significant majority of women are doing quite well and appear to be leading productive lives without lasting psychological harm.”

In the same article, Susan Nayfield, M.D., a program director in cancer control at the National Cancer Institute, said the findings from the study help answer the question, “Are we doing the right thing?” Despite the high satisfaction reported, she said a significant but smaller group of women—19 percent—reported dissatisfaction after the procedure. ■

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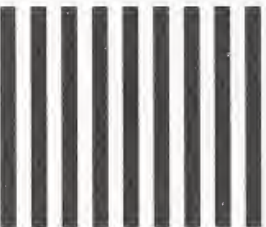
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Human Rights in the United States

Illusions and Realities

Although the United States portrays itself as a leader in human rights, political rhetoric is often stronger than our willingness to take action.

Justice cannot be for one side alone, but must be for both.

—Eleanor Roosevelt

The Universal Declaration of Human Rights was adopted by the United Nations General Assembly in 1948. While not the first document to address human rights issues, the Universal Declaration is perhaps the broadest. Drafted in response to the devastation caused by two world wars, the declaration was intended to provide both guidance and inspiration to prevent future atrocities. The broad spectrum of human rights outlined in the declaration serve as the foundation for international laws protecting individual rights and freedoms.

Subsequent documents that have expanded on the human rights listed in the declaration include the International Covenant on Social, Economic and Cultural Rights, which stresses the right to employment, education, and participation in cultural life, the highest attainable standard of health, and freedom from hunger; the International Covenant on Civil and Political Rights, which details the right to life, liberty, and security, a fair trial, privacy, and freedom of thought, opinion, and religion; and the Convention on the Rights of the Child, which delineates a broad spectrum of social, economic, and political rights of children.

Although the United States likes to portray itself as a leader in human rights, political rhetoric is often stronger than our willingness to take action, both internationally and nationally. The United States has a long history of human rights abuses, including slavery, subjugation of native people, and disenfranchisement of minorities and women. More recently, the United States has shown a poor human rights record in the areas of landmines, children's rights, and standards of health, among others.

Landmines

Recently, the United States failed to ratify international treaties to ban the production and sale of landmines (see related article, page 30). From 1980 to 1993, the incidence of landmine-related injuries doubled, to 2,000 injuries and/or deaths worldwide each month. More than 120 million landmines are buried in 71 countries, and an estimated 2 million to 5 million landmines continue to be buried each year.¹

Besides causing unnecessary injuries and deaths, landmines have a dramatic economic impact. They cost approximately \$3 to \$30 to produce and between \$300 and \$1,000 to remove—and the rate of production exceeds that of removal. Buried landmines can affect land use, decreasing agricultural capacity and killing livestock.² Despite the toll that landmines exact on human lives, the United States has not sought aggressively to ban the production and use of landmines. In fact, the United States has a stockpile of approximately 12 million landmines.³ Forty-seven U.S. companies, including Alliant Techsystems in Hopkins, Minnesota, have been involved in the manufacture of antipersonnel mines; 19 have agreed to renounce future involvement.³

Children's Rights

The United States has yet to provide explicit constitutional guarantees of social and political rights for children. Although the United States has signed the Convention on the Rights of the Child, it is one of only two countries, along with Somalia, that have not ratified this important international treaty.

In conflict with most international norms, the United States supports the death penalty for minors. The Convention on the Rights of the Child holds that children under age 18 are not fully mature or responsible and are therefore more likely to be

capable of reform.⁴ Most countries support the convention's stand, and very few have executed juveniles in the past 10 years. Those that have include Iran, Nigeria, Pakistan, Saudi Arabia, and the United States. The United States has ratified the Covenant on Civil and Political Rights, which also prohibits passing a death sentence on juvenile offenders. However, according to an Amnesty International report, "U.S. state authorities have executed seven prisoners for crimes committed when they were under 18."⁵ As of October 1998, 73 juvenile offenders remained on death row in the United States.

Standard of Health

Another right that the United States often fails to ensure is an individual's right to the highest attainable standard of health. Article 25 of the Declaration of Human Rights states that "everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing, medical care and necessary social services."⁶ Health is a prerequisite for the enjoyment of the other basic human rights; if your health needs are not met, it is difficult to enjoy the right to freedom of expression or the right to education.

There are significant inequities in children's health among different socioeconomic and racial/ethnic groups, particularly concerning immunization coverage. The Centers for Disease Control and Prevention (CDC) has set a goal of 90 percent coverage by the year 2000 for all children residing in the United States. Coverage, as defined by the CDC, includes at least one dose of measles-mumps-rubella vaccine, and three doses each of diphtheria and tetanus toxoids and pertussis vaccine (DTP), hepatitis B vaccine, *Haemophilus influenzae* type B vaccine, and oral polio virus vaccine.⁷

In an effort to measure how close Minnesota is to achieving its own immunization goal, the Minnesota Department of Health launched a comprehensive survey to assess the immunization history of all 69,772 kindergartners in the state as they entered school in 1996. The results showed that 68 percent of these children were up to date for the primary series of immunizations at age 24 months. While this is an improvement over previous years, 22,300 children in Minnesota were still inadequately immunized at 24 months, leaving them vulnerable to serious but preventable diseases. In addition, the survey revealed dispar-

ities in coverage levels among racial/ethnic groups. When compared with white students, all minority students had lower immunization levels at every assessment point measured. For example, at 4 months of age, 93 percent of white children had been immunized with their first dose of DTP and polio vaccines. In comparison, 81 percent of American Indian/Alaskan Native, 67 percent of Asian/Pacific Islander, 75 percent of black, and 72 percent of Hispanic children had received these immunizations.⁸

Inequities in measures of health and access to health care also occur among adults. This can be demonstrated by looking at the history and present epidemiology of tuberculosis (TB) in the United States. After more than 30 years of decline, tuberculosis rates reached a plateau and then began to rise in 1986.⁹ This can be attributed to several factors: the emergence of the HIV epidemic; antibiotic-resistant strains of *Mycobacterium tuberculosis*; increased immigration from countries with a high prevalence of TB; and a decrease in funding and expenditure for TB control programs.

In the United States, tuberculosis has disproportionately affected certain groups of people. From 1985 to 1992, the case rate was 5.5, 8, and 11.5 times higher for Hispanics, blacks, and Asian/Pacific Islanders, respectively, compared with whites.¹⁰ This is partially explained by the substantial increase in immigrants from countries with very high TB incidence rates. Even when this factor is taken into account, however, TB rates for racial/ethnic minorities were still five to 10 times higher than for whites.^{11,12}

Racial differences in incidence for sexually transmitted diseases are also pronounced (see the table, page 44).¹³

As a first step toward resolving these issues, the United States needs to conform to international human rights norms. This includes ratifying the Convention on the Rights of the Child, implementing the convention, banning the production of landmines, and supporting equal access to health care and education.

MM

David Parker is an occupational epidemiologist at the Minnesota Department of Health and an occupational health physician at HealthSystem Minnesota. He also is an author of the book Stolen Dreams: Portraits of Working Children, for children in grades four through nine. Lara Misegades is an intern at the Minnesota Department of Health. ➔

By David Parker, M.D., M.P.H., and Lara Misegades

Table

Disease incidence by race per 100,000: Minnesota—1997

Race/Ethnicity	TB	Chlamydia	Gonorrhea	Syphilis
White	0.7	71	14	0.1
Asian	45.2	200	15	0
Black	49.3	1,721	1,054	9.0
American Indian	6.7	414	115	0
Hispanic	18.0	512	108	N/A

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Opportunity from page 8

about the effects of torture and the impact it may have on their patients. "If you're seeing immigrants and refugees, you're seeing victims of torture, whether you realize it or not," Antolak says. "Knowing that can help the person as well as eliminate some needless testing."

If a patient is not responding to treatment, reports sleep problems or headaches, seems depressed, and is a refugee or immigrant, a physician may want to consider torture as a possible cause, Antolak says. While torture survivors may have lingering physical injuries, often the most troubling aftereffects are psychological, such as depression, difficulty concentrating, or posttraumatic stress disorder. Sleep deprivation can aggravate the problem. "Many victims of torture don't sleep because they don't want to sleep; they have such horrific nightmares," Antolak says. Often survivors are reluctant to discuss their symptoms. "They may feel it reflects badly on them or that people will think they are crazy." Women who have been raped may not be willing to share that information because they fear it will get back to the community. In many cultures, Antolak says, "the shame is on the woman," not the rapist. "A rape victim may not be seen as a good partner for marriage."

The road to healing is complicated by the fact that torture survivors often find it difficult to establish trust in others, including physicians. "We try to offer words of hope and kindness in addition to dealing with physical and mental concerns," Antolak says.

Many of Antolak's patients were well-educated professionals in their home countries who are now struggling to learn English, find work, and build a new life. "People want to contribute," she says. "I'm awestruck and inspired by the stories I hear. It's amazing how resilient, resourceful, and creative people can be. I've seen some remarkable transitions."

Her patients' experiences have deepened Antolak's appreciation for her own country. "The United States is not a perfect place, but it's an amazing experiment in human history," she says. "Where else has there been a country like this in the history of humanity? Refugees generally appreciate the freedom here and don't take it for granted."

They are also amazed by American prosperity, she adds. "This is such a wealthy culture. I was talking with a woman from Nepal and I asked her, 'What does your mother think of America?' She said, 'Even the poorest person here is richer than the richest person in her village.'"

But abundance also has its downside: "Poverty is not good," Antolak says, "but having so many things, people sometimes get confused about what's important."

That's one reason Antolak serves on the U of M Medical School's admissions committee and mentors

medical students. "I want to teach them that there's more than one path," she explains. "There are choices about what one does with one's money and time." Antolak illustrates that principle in her own life—she and her husband have yet to buy a house; they prefer to spend their money on travel.

During a trip around the world 10 years ago, Antolak and her husband went to Poland, where Antolak's grandmother was born. A great-aunt told Antolak that her grandmother had left Poland when she was 27 years old to go to the United States, where she hoped to earn enough money to send some back to her relatives. "She was crying for days before she left; she knew she might never see her family again," Antolak says. "When I flew home over the ocean, I was thanking my grandparents for the opportunities I had because of their courage. And I had a much better appreciation of the struggles and courage of refugees and immigrants coming now from other countries." MM

Kim Palmer is a Twin Cities freelance writer.



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Physicians and the Ethic of Human Rights

As traditional barriers to physician activism begin to fall, the medical profession may embrace a human rights ethic as a professional imperative.

Physicians have played a uniquely important role in protecting human rights: They have documented torture, extrajudicial killings, prison conditions, landmine injuries, and other abuses; spoken out on behalf of colleagues whose human rights have been violated; and protested the misuse of medicine for political purposes.¹ Moreover, the physician's duty to respect patients' dignity is consistent with the core concept of human rights—namely, that human beings are born free and equal in dignity and rights. Still, members of the medical profession have been slow to embrace an ethic that would demand that they work affirmatively to advance human rights. Here I outline three barriers to such an ethic and explain why I think those barriers are now falling.

Barriers to Physician Activism

The doctor-patient relationship

The physician's role is focused on doctor and patient, on individual medical diagnosis and intervention to cure or relieve suffering. This very private role, played out in the examining room or the research laboratory, represents one barrier to human rights advocacy. The doctor-patient relationship takes place behind closed doors and is almost always isolated from people and political and social forces outside the room.

In literature and on television, tireless doctors work furiously to save lives in the hospital, or they sit hunched over in the lab, searching for a cure for some dread disease. The work is intense but narrowly focused. As social historian David Rothman explains, the intensity of physicians' work and their separation from social and political life during the long period of training lead to a professional life of relative isolation among patients and colleagues, accompanied by a notoriously low level of political

involvement.² Thus, human rights advocacy does not come naturally to doctors.

To be sure, the world sometimes becomes the physician's stage. The medical profession has a long history of helping victims of natural disasters and politically caused catastrophes such as war and famine. But stepping forward to offer humanitarian aid differs from taking a stand on human rights. The former extends the physician-patient relationship to individuals in particularly dire circumstances, while the latter typically involves challenging abuses by the state or warring parties.

An emphasis on autonomy

A second barrier to a human rights ethic has been the dominance of the value of autonomy in medical practice and a concomitant resistance to control by corporate or government bureaucracies.³ While a strong emphasis on autonomy assures patients that a physician's medical judgment remains independent, it sometimes clashes with a human rights approach to access to medical care. Through most of the 20th century, for example, the organized medical profession often opposed expanded access to health care, since universal access invariably threatened physicians' control of medicine.

An insistence on autonomy also brought clashes with patient and consumer groups. By the 1970s, human or civil rights demands generally were asserted *against* physicians, not *by* them. Women sought greater participation in decisions about their medical treatment and childbirth. People with psychiatric conditions demanded the right to have judges, not psychiatrists, decide if their liberty could be taken from them. Consumers demanded more information about their treatment. As a result, a human rights perspective sometimes seemed to interfere with medical prerogatives.

Medical ethics

A third limiting factor concerns the ethics of the profession itself. Medical ethics centers on the physician's relationship to individual patients, involving decisions such as whether to remove life support from a terminally ill patient or how to assign responsibility for patients who cannot give informed consent. Of course, bioethics addresses more global questions, such as rationing care and commerce in organs, but even these issues are intertwined with ethical concerns about treating individual patients. In contrast, medical ethicists have paid only limited attention to advancing the health of all members of society, ending discrimination and denial of medical care because of status or income, and assessing the health consequences of human rights violations.

This individual-centered approach to medical ethics serves an undeniably important function in guiding difficult clinical decisions, but it also has a cost. It provides little basis for understanding the social and political context in which patients' health problems arise, especially if that context involves human rights violations. Standard ethical precepts may do a good job of protecting confidentiality, but they have nothing to say about the legitimacy of government demands for waivers of confidentiality. The prevailing ethic may ensure that patients receive good care, but it does not take into account the poor or socially disfavored people who do not have access to a doctor in the first place. Finally, ethical codes and opinions provide scant advice to physicians who face government demands that limit the scope or extent of medical care, such as restrictions on care for immigrants or prison policies that balance patients' health needs against the facility's security needs.

Toward a Human Rights Ethic

Over the past generation, these barriers to a human rights ethic have begun to fall. Changes both within and outside the profession are leading physicians to become more aware of and participate in human rights issues—and to view the advancement of human rights as a professional imperative.

Take the first problem, physicians' isolation. A focus on the patient remains the hallmark of clinical practice, but it is ever more difficult to prevent the social and political realities that affect a patient's health from intruding into the examining room. No internist who treats a patient with AIDS can be unaware of the impact of social stigma against people with AIDS, nor of the social policies that may limit or deny patients access to medication. Physicians in Cali-

fornia could not avoid confronting the provisions of Proposition 187, which sought to deny health care to undocumented immigrants—even those who were willing to pay for it—and demanded that certain providers report undocumented immigrants to the Immigration and Naturalization Service. Every physician must be disturbed by increasing evidence of the apparent role that a patient's race plays in clinical diagnosis and treatment.

At the same time, physicians must come to grips with the fact that professional autonomy is no longer absolute. The loss of autonomy means more than the intrusion of managed care organizations into professional decision-making. In many countries, including those that embrace Western medical ethics, physicians have been pressured to participate in torture.⁴⁻⁶ In South Africa, medical leaders, though claiming to be apolitical, became complicit—by silence and refusal to act—in gross abuses against the black majority by the apartheid regime.⁶ In the Soviet Union, psychiatrists hospitalized political dissidents through politically inspired use of psychiatric diagnoses.⁵ In the United States, physicians have been implicated in harmful experiments, the true purposes of which were hidden from patients in the name of national security, or, as in the infamous Tuskegee project, because of the government's interest in advancing knowledge.⁷⁻⁹ At the same time, physicians themselves can easily become victims of human rights violations. In Kosovo, for example, Serbian forces specifically targeted Kosovar Albanian physicians.¹⁰

Infringements on autonomy, a growing awareness that physicians themselves may participate in abuses, and the limits of the prevailing medical ethic have raised awareness of the need for values extending beyond autonomy to promoting and protecting human rights. The foundations for such a new ethic were laid during the 1970s and 1980s, when international physicians organizations established principles regarding nonparticipation in torture, obligations in times of armed conflict, responsibilities to persons in detention, and appropriate responses in other situations in which physicians could be implicated in human rights violations. The Declaration of Tokyo, for example, prohibits physician participation in torture.¹¹ Similarly, medical organizations have become leaders in resisting physician participation in the death penalty.¹²

A Call to Action

A human rights approach to medical ethics seeks to apply the core concepts of the Universal Decla-

By Leonard S. Rubenstein

ration of Human Rights—advancement of well-being and affirmation of the dignity of the individual—to the physician's role.¹³ Such an ethic asks that physicians, in clinical practice and as an organized profession, use their professional skills to advance human rights. Not only must physicians refuse to participate in human rights violations, but they also must promote health, well-being, and dignity for all members of society. This means, for example, speaking out and acting against practices that harm people's health, that deny poor or disenfranchised groups access to health care, and that perpetuate discrimination. It also means supporting colleagues who are subject to human rights violations.

Paradoxically, the erosion of autonomy in the era of managed care may encourage the emergence of such an ethic. On the one hand, physicians struggling with increasing corporate control over medicine may experience intrusions into their medical decisions that could result in human rights violations. Although managed care's economically motivated interference with clinical judgment is not the same as governmental or politically motivated interference, the thread connecting them is clear.

Physicians can contribute enormously to protecting human rights. Consider, for example, the role of physicians in the struggle against landmines. This weapon harms indiscriminately, killing or maiming an estimated 26,000 people a year, mostly civilians (see related article, page 30).¹⁴ Working to ban landmines—a human rights and medical disaster—is certainly not within the scope of traditional medical ethics. Those ethics would call for treating victims, especially in an emergency, but they do not obligate physicians to join the effort to eliminate the weapon. An ethic based on human rights, however, views the elimination of landmines as a means of protecting the health of millions of people. Physicians have exercised consistent leadership in seeking to ban the weapon. Many professional societies, including the American Medical Association, have taken a tough stand to ban landmines.¹⁵

There is every reason to think that a new ethic is emerging and to hope that the medical profession will overcome its tradition of insularity to embrace a larger vision of its mission through a human rights ethic. Physicians worldwide can shape that ethic and work toward its fulfillment.

MM

Leonard Rubenstein is the executive director of Physicians for Human Rights.

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Embargoes That Harm Health

The Case for Physician Leadership

The medical profession must advocate the value of health for civilians under economic sanctions just as it has for those in war.

It is a tragic irony. Nations are trying to move away from the carnage of war by promoting diplomatic solutions, limiting weapons of mass destruction, and securing rights to protect people during war or occupation. International agreements attempt to ensure medical care and public health for civilians (especially children) in war zones or under occupation, and for injured soldiers or prisoners of war.^{1,2} These same conventions do not protect access to medical supplies, or treatment or public health for civilians or children whose health is besieged by increasingly common economic sanctions. The United States imposed sanctions or passed laws threatening to do so against 35 nations between 1993 and 1996.³

International agreements oblige health care for civilians and soldiers in war and occupation. For example, Geneva Convention IV outlines the responsibilities of nations occupying other nations:

"the duty of ensuring and maintaining ... the medical and hospital establishments and services, public health and hygiene ... [and] preventive measures necessary to combat the spread of contagious diseases and epidemics. ... The material and stores of civilian hospitals cannot be requisitioned so long as they are necessary for... civilian[s]. ... The National Red Cross Societies shall be able to pursue their activities. ... Other relief societies shall be permitted to continue their humanitarian activities. ... The occupying power may not require any changes in the personnel or structure of these societies, which would prejudice the aforesaid activities."¹

The United Nation's Universal Declaration of Human Rights says that no nation may engage in any activity aimed at the destruction of the right to medical care and that motherhood and childhood are entitled

to special care.⁴

Embargoes of medical supplies degrade medical and public health systems.⁵⁻⁷ They decrease imports of drugs, diagnostic and therapeutic equipment, public health equipment, and the supplies (such as chlorine for water systems or radiographic film) needed to repair or operate such equipment. Impediments to travel obstruct health professionals' access to information, teaching, textbooks, and conferences. Procedures to evade sanctions delay health supplies and add high transportation and middleman costs. Embargoes demoralize talented and dedicated health personnel, who in some cases leave their careers. Often, humanitarian aid organizations either withdraw or do not seek assignments under such circumstances.

Regardless of their stated goal to change the national policy of the target state, sanctions of health materials harm the health of persons who are poor, young, old, disabled, or pregnant more than they hurt the leadership of the targeted nation. Economic destruction of hospital and public health infrastructures is associated with rising rates of disease and deaths and anecdotal accounts of individual harms resulting from the unavailability of drugs, vaccines, surgical equipment, and public health supplies.⁸⁻¹⁰

The moral voice of medicine is properly summoned when policies threaten health. It has been effectively summoned in regard to physician participation in torture, the health effects of nuclear war, and advocacy for the well-being of persons or groups who are endangered because of gender, political belief, or religion.^{11,12} It is summoned with regard to economic sanctions as well.

Physicians have the expertise to analyze the morbidity caused

By Steven Miles, M.D.

by embargoes. Our duty is not simply to call for amending or lifting sanctions against specific nations. The particularity of such individual appeals makes them politically suspect. Instead, medicine must lead in creating a general policy framework for health advocacy and economic sanctions, as it has for war and weapons of mass destruction.

National and international medical societies should help promote new conventions to erase differences between regard for the health interests of civilians in war and regard for civilians under economic sanctions. The American College of Physicians has recently endorsed a comprehensive document now being prepared for public release. The American Public Health Association's Governing Council recently passed such a framework.¹³ The British Medical Association, the American Medical Association, and the World Medical Association have passed brief position statements.

Such a convention should include the following provisions. First, sanctions should be preceded by a prospective "health impact analysis," and ongoing monitoring of sanctions should be conducted by qualified, neutral organizations. Second, sanctions should routinely exclude prospectively specified types of medical and public health supplies deemed important to reducing the morbidity or mortality of civil-

ians, especially lactating or pregnant women, older persons, disabled persons, and children. Third, a convention should provide for qualified neutral organizations to assess appeals to exempt additional specific material. Fourth, it should provide for supervision to ensure that donated health material reaches its intended civilian recipients.

The exercise of the moral voice of medicine when economic sanctions affect health is a claim that the value of promoting health deserves advocacy in all our national endeavors. As a profession we must steadfastly advocate this value in a broader public conversation. Such advocacy is not an improper claim to political expertise or authority, even as national and international policymakers make the final decisions about how to use economic sanctions. If we do not participate in this discussion, we sell our professional duty short and leave the political conversation incomplete.

MM

Steven Miles is a professor of medicine at the University of Minnesota Medical School and the Center for Bioethics and a physician at HealthPartners. He is a member of the Ethics and Human Rights Committee of the American College of Physicians and is responsible for drafting its policy on this matter.

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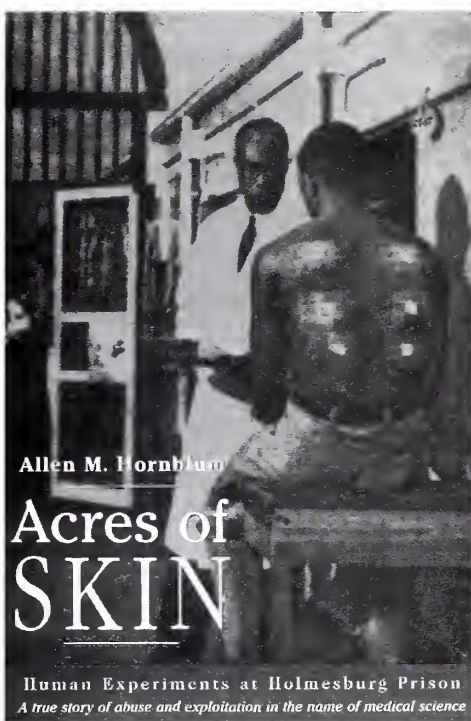
Unwitting Consent

"Acres of Skin: Human Experiments at Holmesburg Prison" tells the story of medical researchers who sacrificed the rights of their subjects for personal profit.

Reviewed by Charles R. Meyer, M.D.

On August 19, 1947, The Doctors' Trial concluded in Nuremberg, Germany. For seven months, the world had heard a nauseating litany of human experimentation pursued inhumanely, victims labeled "research subjects," and prisoners reduced to objects without rights. After sentencing nine defendants to long prison terms and seven to death, the Nuremberg Tribunal spelled out 10 principles, dubbed the Nuremberg Code, intended to provide a legal and ethical guide for future medical research.

The horror of the Nazi saga should have sensitized the medical world to the ethical perils of medical research on prisoners. The thoughtful principles of the Nuremberg Tribunal, with provisions for patient autonomy and safety, should have been golden tablets for generations of researchers. Yet many in American medicine viewed the Nazi experiments as aberrations perpetrated by monsters. As medical ethicist Jay Katz, M.D., puts it, many American researchers believed the Nuremberg Code was "a good code for barbarians but an unnecessary code for ordinary physicians." Conscientious physicians could be trusted to do what was right for patients. The Helsinki Declaration, issued in 1964 by the World Medical Association, contended that investigators with integrity and judgment could determine whether an experimental protocol required informed consent. But soon after Helsinki, the fallibility of investiga-



tor judgment was dramatized by the discovery of a study at Brooklyn's Jewish Chronic Hospital in which cancer cells had been injected under the skin of elderly, debilitated patients without their consent. The 1964 investigation of this research by the National Institutes of Health-appointed Livingston Committee led to the development of the institutional review board, today a standard safeguard against research investigator shortsightedness.

Even after the Livingston Report, unsettling revelations about ethically flawed human studies continued. Mentally retarded children at New York's Willowbrook State Hospital

were intentionally infected with viral hepatitis so that physicians could observe the disease's progression. In Tuskegee, Alabama, 400 men diagnosed with syphilis were not told about their disease and were left untreated so investigators could follow the "natural" course of syphilis. And prisoners at Holmesburg Prison in Pennsylvania were "cheap labor" for medical studies for two decades. What happened at Holmesburg is the story of "Acres of Skin: Human Experiments at Holmesburg Prison," by Allen M. Hornblum (Routledge, 1998).

Much of Hornblum's story centers on Albert Kligman, M.D., a University of Pennsylvania dermatologist. Arrogant, brilliant, likely manic, Kligman wowed his dermatology colleagues with sparkling lectures, voluminous research, and non-stop ideas. Yet his brilliance lacked ethical restraints. One of his students quoted him as saying that rules don't apply to genius and claimed that Kligman "thought he could do and say anything and get away with it [because] he was superior to the average fellow and deserved greater freedom." His deluge of ideas translated into a flood of government and pharmaceutical company grants and contracts for dermatology research studies, most of which needed available, willing subjects. Kligman found his subject bonanza in 1951 when he was invited to Holmesburg prison to consult about an outbreak of athlete's foot. His initial reaction to

Holmesburg gives Hornblum's book its title: "All I saw before me were acres of skin. It was like a farmer seeing a fertile field for the first time."

Kligman farmed that field in the 1950s and '60s, inoculating prisoners with herpes, vaccinia, and wart viruses; exposing prisoner skin to *Staphylococcus* and *Monilia*; and testing the skin response to extreme temperatures and radioisotopes. Any written informed consent was sketchy or unintelligible to most prisoners. Yet despite the risks and clear manipulation by Kligman, many prisoners liked the program. Although prisoners were paid a fraction of what nonincarcerated subjects would have demanded, they were paid well by prison standards, and the research gave them a "purpose." Even years later, when they learned of the hazards to which they had been exposed, former inmates still spoke positively about Kligman's research.

The early 1970s brought congressional investigation of experimentation on prison and institutional inmates, provoked partly by Jessica Mitford's exposé "Kind and Usual Punishment." The issue was publicly debated by the *New England Journal's* Franz Ingelfinger and vaccine inventor Albert Sabin. In March 1976, all medical experimentation on federal inmates was abolished by law, and the studies at Holmesburg ceased.

Medical ethics has come a long way since Kligman and Holmesburg. Informed consent is a principle enshrined in medical practice and research. Although foggy issues persist about what constitutes full consent and who is competent to give it, that consent must be obtained is clear. One hopes society has come just as far in its treatment of the detained and the disabled.

Hornblum's Holmesburg Prison tale is a story of blindness: Medical researchers, blinded by the lure of fame and profit and blind to the humanity and rights of "inferior" citizens, did not see the haunting similarity between their experiments and the atrocities revealed at Nuremberg. **MM**

Charles Meyer is editor-in-chief of Minnesota Medicine.

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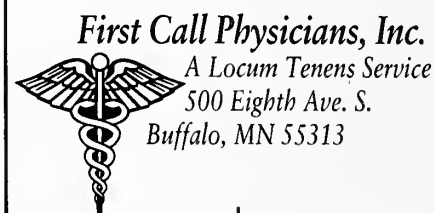
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A Calendar of Continuing Medical Education Courses

Provided as a service of the MMA Committee on Accreditation and CME. For assistance with scheduling meetings or for information on future medical meetings and CME courses, please contact the MMA office: 3433 Broadway Street NE, Suite 300, Minneapolis, Minnesota 55413-1761; 612/378-1875. For a complete listing of our calendar, visit the MMA Web site at www.mnmed.org. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

J U L Y 1 9 9 9

July 18-24 **Mayo Clinic Internal Medicine Certification and Recertification Board Review 1999** Mayo Foundation; Mayo Civic Center, Rochester, MN. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 28-30 **The Fifth Annual Mayo Multidisciplinary Symposium on Platelets, Blood Vessels, and Extracorporeal Medicine** Mayo Foundation; Leighton Auditorium, Siebens Medical Education Building, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 28-31 **Mayo Interventional Cardiology Symposium** Mayo Foundation & Society for Cardiac Angiography and Interventions; Silverado Country Club & Resort, Napa Valley, CA. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

July 29 **Mayo Coagulation Wet Workshop** Mayo School of Continuing Medical Education; Harold W. Siebens Medical Education Building, Mayo Medical Center, Rochester, MN. CONTACT: Jenny Kundert, CME Specialist, Mayo School of Continuing Medical Education, Pavilion Mezzanine, 200 First Street SW, Rochester, MN 55905; 507/266-9849 or kundert.jenny@mayo.edu.

July 30-31 **Bleeding and Thrombosing Diseases: The Basics and Beyond** Mayo School of Continuing Medical Education; Harold W. Siebens Medical Education Building, Mayo Medical Center, Rochester, MN. CONTACT: Jenny Kundert, CME Specialist, Mayo School of Continuing Medical Education, Pavilion Mezzanine, 200 First Street SW, Rochester, MN 55905; 507/266-9849 or kundert.jenny@mayo.edu.

A U G U S T 1 9 9 9

Aug. 15-20 **Mayo Clinic Review of Women's Health Care** Mayo Foundation; Honolulu, HI. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

S E P T E M B E R 1 9 9 9

Sept. 9-11 **Practical Surgical Pathology** Mayo Foundation; Mayo Clinic, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Sept. 10 **1999 Primary Care Conference** St. Mary's/Duluth Clinic Health System; Holiday Inn Hotel and Suites, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Sept. 16-18 **62nd Annual Colon and Rectal Surgery: Principles and Practice Course** University of Minnesota; Minneapolis Hilton Hotel and Towers, Minneapolis, MN. CONTACT: Cynthia Iverson, 2550 University Avenue W, Suite 313N, St. Paul, MN 55114; 651/312-1556.

Sept. 23-25 **MAPA's 24th Annual Fall CME Seminar** Minnesota Academy of Physician Assistants; Quality Inn, Winona, MN. CONTACT: Deb Sanders, 3433 Broadway Street NE, Suite 300, Minneapolis, MN 55413; 800/342-5662.

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Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

OCTOBER 1999

Oct. 2 **Mayo Clinic Hand Center Symposium: Rheumatoid Arthritis of the Hand** Mayo Foundation; Rochester Marriott Hotel, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 7-8 **1999 Oncology Conference** St. Mary's/Duluth Clinic Health System; Fitger's Theatre of the North, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Oct. 28 **Geriatric Care for the Primary Care Physician** Mayo Foundation; Mayo Foundation, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 31-Nov. 5 **Advances in Diagnostic Radiology and Advanced Radiology Life Support Course** Mayo Foundation; Loews Ventana Canyon Resort, Tucson, AZ. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

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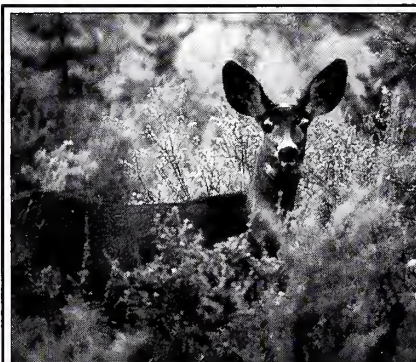
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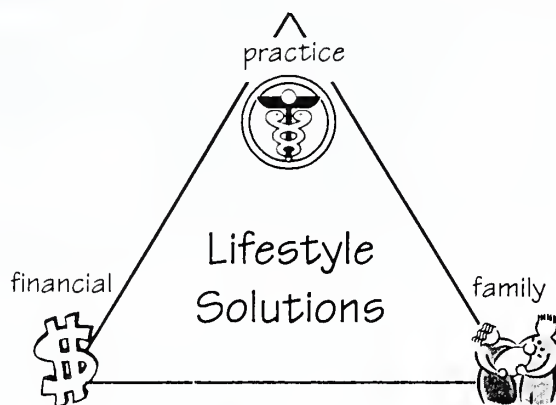
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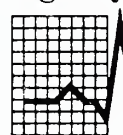
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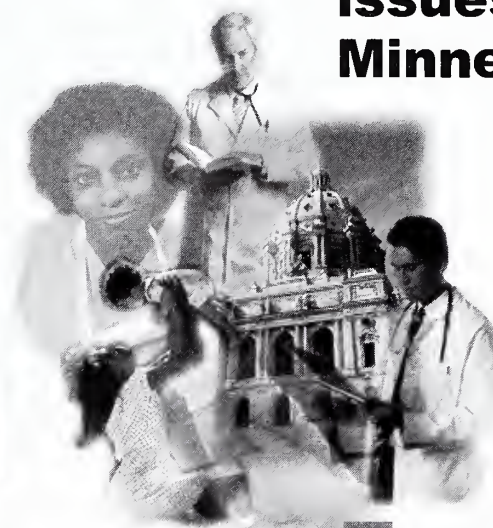
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Photograph of the Palace of the Popes in Avignon, France, by R. Kord/H. Armstrong Roberts.

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A Vacation to Remember

There are two weeks in January in Minnesota when the mercury sulks, never making an appearance above zero, and a steady north wind blows—a result of the vacuum effect created by Minnesotans fleeing southward.



Until last year, I had successfully resisted the peer pressure of natives to escape the deep freeze by taking “the winter vacation” someplace south. Wanting to prove myself a real Minnesotan (since I don’t ice fish or own a cabin), I knuckled under last winter and took my wife, Carolyn, south. To Sheridan, Illinois.

sired five children, including my great-grandfather, Albert, and allegedly went west in the Gold Rush.

My great-grandmother, Elizabeth, married Albert and lived in Sheridan all of her 93 years, 35 of them as a widow. As a child, I took trips to visit Grandma Gransden, stepping out of 1950s suburban Chicago and into the early 20th century. Sheridan boasted 300 inhabitants and no paved streets. My great-grandmother’s house was a white frame beauty with lattice along the eaves, a two-sided front porch that I don’t remember ever sitting on, and an endlessly fascinating indoor pump for drinking water. Our visits involved eating, sitting in the living room, and listening to Cubs games on the radio with my Great Uncle Bert, who taught school and lived with his mother. Except for fantasies about what might lurk in the house’s upstairs, which I never got to see, these visits were not exhilarating. But they were a part of my family. So I went to Sheridan last year.

Exploring the place of my heritage, Carolyn and I toured Ottawa, the county seat, finding an eclectic antiques/junk store in a 140-year-old building with a gabby owner who had shared his entire autobiography by the time we left the shop. We spent hours in the Ottawa library and filled in some historical blanks in the Gransden saga. We found the best coffee and breakfast rolls in Ottawa.

And we inhaled the mists of the Gransden past. We visited all six plots of farmland, snaking back and forth across flat, snow-whitened fields on roads with four-digit numbers for names (e.g., 4235th Street). Had we blinked, we would have missed Northville, the four-house settlement where the original Gransden home was. We stood on the bridge over the Fox River at the north end of Sheridan and imagined Bob and Bert pulling in catfish. And we went back to that corner frame house, different because of the paved roads and the eight cars parked out in back, yet so familiar that I drove right to it.

The auction actually proved anticlimactic. Only one plot was sold. The other five

What a guy, you say. Drive your bride to a sleepy hamlet of 2,000 souls in the dead of January. I won’t claim that the Sure Shot Bar and Café measured up to Club Med’s standards. I won’t brag that the frozen banks of the Fox River even remotely resembled the beaches of Cancun. And I’ll admit that the closest my wife and I came to a suntan was a windburn from standing outside gazing at farmland. Yet in many respects this was one of the more rewarding vacations we have taken.

The focus of our trip was a meeting of 12 people that took place on a Friday in a small conference room in an Ottawa, Illinois, lawyer’s office. Seated around the table were eight farmers, a land developer, the lawyer, my mother, and my Uncle Bob. The purpose of the meeting was a closed-bid auction of six pieces of farmland just north of Sheridan that had been in my family for 150 years. I wasn’t there to bid. I wasn’t there to help my mother or my uncle. I was there to record a piece of history.

The story begins with Thomas Gransden. He arrived in Lasalle County, Illinois, in 1834 from Kent County, England. He acquired 80 acres of land in 1839 as part of the Land Grant Act. Between then and his death in 1887, he married Eliza Powell,

.....
*“My trip
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VACATION to page 63

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IMITREX is a prescription medicine created specifically for the acute treatment of migraine attacks in adults. You should not take IMITREX if you have certain types of heart or blood vessel disease, a history of stroke or TIAs, or uncontrolled blood pressure. Very rarely, certain people, even some without heart disease have had serious heart-related problems.

So talk to your doctor, especially if you have risk factors for heart disease, like smoking, diabetes, high blood pressure or high cholesterol; or if you're pregnant, nursing or taking medications.

1. Source: Physician Drug and Diagnosis Audit (PDDA), November 1996–October 1997, Scott-Levin, a Division of Scott-Levin, PMSI, Inc.

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Please see the important information on the following page.

Patient Information about IMITREX Tablets and IMITREX Nasal Spray for migraine headaches.
Generic names: sumatriptan succinate, sumatriptan

Please read this summary of information about IMITREX before you talk to your doctor or start using IMITREX. No summary can take the place of a careful discussion between you and your doctor. Only your doctor has the medical training and the complete prescribing information necessary to determine if this medicine is right for you. Once you read this summary, you should discuss with your doctor whether IMITREX is appropriate treatment for you and ask any questions you may have.

WHAT IS IMITREX?

IMITREX is the brand name of sumatriptan, a drug intended to relieve your migraine headaches but not to prevent or reduce the number of migraine headaches you experience. IMITREX should be used only to treat an actual migraine attack. IMITREX can be obtained only with a doctor's prescription and should be used by adults only after discussing the choice with your doctor, taking into account your individual preferences and medical circumstances.

HOW DOES IMITREX WORK?

How IMITREX works is not completely understood. IMITREX is a 5-HT₁ agonist that seems to relieve migraine headaches by acting like a brain chemical called 5-hydroxytryptamine, causing some blood vessels in the head that are swollen during a migraine to constrict (that is, to become smaller), which helps relieve migraine headache.

IMPORTANT SAFETY CONSIDERATIONS

Although the vast majority of patients who have taken IMITREX have not experienced any significant side effects, some patients have experienced serious heart problems and, rarely, considering the extensiveness of IMITREX use worldwide, deaths have been reported. In all but a few instances, however, serious problems occurred in patients with known heart disease, and it was not clear whether IMITREX was a contributing factor in these deaths.

Serious events relating to the blood vessels in the head (e.g. brain hemorrhage, stroke) have been reported in patients who were taking IMITREX. Some of these have resulted in death; however, the relationship of IMITREX to these events is uncertain. In a number of these cases it appears possible that patients were not experiencing a migraine but rather an event due to blood vessel disease in the head. IMITREX was given in the incorrect belief that the person may have been suffering a migraine. Therefore, you should not take IMITREX if the headache you are experiencing is different from your usual migraine attacks. People who suffer from migraines may be at increased risk of certain blood vessel events in the brain (e.g., hemorrhage, stroke, or transient ischemic attack.)

Ask your doctor about these and additional safety considerations.

WHO SHOULD NOT TAKE IMITREX?

Some types of migraine headaches should not be treated with IMITREX, and some patients should not take IMITREX because of an increased risk of serious side effects.

- If you have had a heart attack, stroke, transient ischemic attacks, peripheral vascular disease (including ischemic bowel disease or Raynaud's syndrome), or any sort of heart disease or symptoms that are associated with constriction of blood vessels, such as ischemic heart disease, angina, or coronary artery vasospasm, you should not use IMITREX.
- If you have uncontrolled high blood pressure, you should not use IMITREX.
- If you are taking certain drugs for depression, talk with your doctor. IMITREX should not be used if you take or have taken within the last 2 weeks, monoamine oxidase inhibitors (MAOIs).
- Your doctor will discuss with you the type of migraine headaches you have. If you have hemiplegic or basilar migraine, you should not take IMITREX. IMITREX should be used only in patients who have been diagnosed by a physician as having migraine with or without aura.
- Tell your doctor about any other medications you are taking. If you are currently taking any migraine medications that include ergot alkaloids, such as methysergide or dihydroergotamine, or other 5-HT₁ agonists, do not take IMITREX within 24 hours of taking these medications.
- Do not take IMITREX if you are allergic to sumatriptan or any of the ingredients in IMITREX.

WHAT MEDICAL PROBLEMS OR CONDITIONS SHOULD I DISCUSS WITH MY DOCTOR?

■ If you have risk factors for heart problems, you should tell your doctor. Your doctor should examine you for heart disease to see whether IMITREX is appropriate for you. Risk factors include high blood pressure, high cholesterol, obesity, diabetes, and smoking. Other patients with risk factors for heart disease are women who are past menopause (whether natural menopause or menopause resulting from surgery), men over 40 years old, or patients with a family history of heart disease. If you have risk factors and your evaluation for heart disease is satisfactory, your doctor may ask you to take the first dose of IMITREX in the doctor's office.

- Tell your doctor if you have chest pains, shortness of breath, or irregular heart beats.
- Tell your doctor if you are taking selective serotonin reuptake inhibitors (SSRIs).
- Tell your doctor if you have a history of epilepsy or seizures.
- Tell your doctor if you have liver or kidney problems.
- Tell your doctor if you have ever had to stop taking any medication because of an allergy or other problems.

USE OF IMITREX DURING PREGNANCY AND BREAST-FEEDING

Do not take IMITREX if you are pregnant, think you may be pregnant, are trying to become pregnant, are not using adequate birth control methods, or are breast-feeding, unless you have discussed this with your doctor.

HOW TO USE IMITREX TABLETS OR NASAL SPRAY

Tablets: For adults, the usual dose is a single tablet taken whole with fluids. A second tablet may be taken if your symptoms of migraine come back or if you have partial response to the first dose, but no sooner than 2 hours after taking the first tablet. For a given attack, if you have no response to the first tablet, do not take a second tablet without first consulting with your doctor. Do not take more than a total of 200 mg of IMITREX Tablets in any 24-hour period.

Nasal Spray: For adults, the usual dose is a single spray administered into one nostril. If your headache comes back, a second nasal spray may be administered anytime 2 hours after administering the first spray. For a given attack, if you have no response to the first nasal spray, do not take a second nasal spray without first consulting your doctor. Do not administer more than a total of 40 mg of IMITREX Nasal Spray in any 24-hour period. The effects of long-term repeated use of IMITREX Nasal Spray on the surface of the nose and throat have not been specifically studied.

The safety of treating an average of more than four headaches in a 30-day period has not been established.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF USING IMITREX?

Do not rely on this summary alone for information about side effects. Your doctor can discuss with you a more complete list of side effects that may be relevant to you.

The most frequently seen side effects are tingling and warm/cold sensations with IMITREX Tablets and bad/unusual taste with IMITREX Nasal Spray.

- Some patients feel pain or tightness in the chest or throat when using IMITREX. If this happens to you, discuss it with your doctor before using any more IMITREX. If the pain is severe or does not go away, call your doctor immediately.
- If you have sudden or severe abdominal pain after taking IMITREX, call your doctor immediately.
- Shortness of breath, wheeziness; heart throbbing; swelling of the eyelids, face, or lips; or a skin rash, skin lumps, or hives happen rarely, but if they happen to you, tell your doctor immediately. Do not take any more IMITREX unless your doctor tells you to.
- Some patients have feelings of tingling, heat, flushing (redness of the face lasting a short time), heaviness, or a feeling of pressure after taking IMITREX. A few patients may feel drowsy, dizzy, tired, sick, or experience nasal irritation (Nasal Spray only). Tell your doctor about these effects at your next visit.
- If you feel unwell in any other way or have any problem that you do not understand after taking IMITREX, tell your doctor immediately.

WHAT SHOULD I DO IF I TAKE AN OVERDOSE?

If you have taken more medication than you have been told, contact either your doctor, a hospital emergency department, or the nearest poison control center immediately.

HOW SHOULD I STORE IMITREX?

Be sure to keep your medicine in an area that cannot be reached by children. It may be harmful to children.

IMITREX Tablets and IMITREX Nasal Spray should be stored at room temperature and do not require refrigeration. Do not store above 86° F (30° C) or below 36° F (2° C). Store away from heat and light. If your medication has expired (the expiration date is printed on the label) throw it away as instructed. If your doctor decides to stop your treatment with IMITREX, do not save any leftover medication unless your doctor tells you to do so. Throw it away as instructed.

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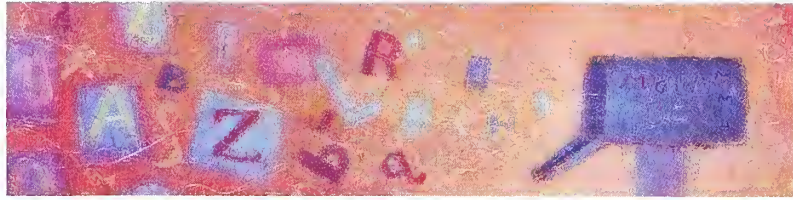
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The Pitfalls of Herbal Medicines

The May *Minnesota Medicine* on medicinal herbs is an excellent resource for physicians navigating that aspect of the "alternative" quagmire. It is apparent from the articles that: 1) quality control in processing herbals is unreliable and adulteration is not uncommon; 2) herbals have no significant proven therapeutic advantage over standard pharmaceuticals; and 3) bad outcomes from herbal products may be legally indefensible if a physician recommends them.

The most glaring omission in the articles, however, is a discussion of the major reason for the popularity of herbals and supplements: crass commercialism. The vitamin lobby's ability to legislate away the FDA's power to police the supplement industry has created risks to consumer health and finances. Virtually all elderly persons receive numerous supplement catalogs. Many also get newsletters written by medical mavericks such as Julian Whitaker, M.D., bashing the medical establishment and promoting a profit-hungry conspiracy of doctors, drug companies, and the FDA to increase sales of their products. The "health food" industry has rightly been characterized as a "form of organized crime." Physicians must ask themselves if it is worth the effort to learn the endless stream of "alternatives" when the benefits are so meager and the pitfalls so obvious.

Paul Brown, M.D.
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Waconia, Minnesota

In Response

I want to thank Dr. Brown for his letter. He has stated well the concerns of thoughtful physicians everywhere.

Yes, crass commercialism does exist, but it does not fully explain national trends. Astin documented that the majority of alternative medicine users find the alternatives to be more congruent with their own values, beliefs, and philosophical orientations toward health and life.¹ Our challenge is to effectively work with and advocate for such patients.

Safety and efficacy are key elements of patient advocacy, and, unfortunately, we physicians cannot count on the FDA to help us at this time. However, calls for more government and less choice are not feasible answers. Instead, physicians should support the Federal Trade Commission, which oversees advertising and consumer fraud issues, in its efforts to apply existing regulations to the herbal and dietary supplement market.

Dr. Brown raises one concern regarding malpractice, but there are others. First, we should be aware that failure to inquire about a patient's use of herbs and dietary supplements may be legally indefensible. Similarly, failure to inquire may also confound ongoing randomized clinical trials. Additionally, given the ready availability of accurate, scientifically defensible information, physicians may also be held responsible for knowing about indications, contraindications, etc. Lastly, given the morbidly and mortality data on properly prescribed pharmaceuticals, physicians may at some point also be held liable for not informing

patients of the availability of viable alternatives.

Physicians must understand the enormous implications of the explosive growth in complementary and alternative medicine. The University of Minnesota's Center for Spirituality and Healing is committed to serving as a resource for practicing physicians and other health professionals. This commitment includes CME, research, and clinical services.

Gregory A. Plotnikoff, M.D., M.T.S.
Medical Director, University of
Minnesota Center for Spirituality and
Healing and author of "Herbalism in
Minnesota: What Should Physicians
Know?" Minnesota Medicine,
May 1999

1. Astin JA. Why patients use alternative medicine: results of a national study. JAMA 1998;279:1548-53.

Does Syncope Occur More Often on Sunday?

The emergency room calls with another case of syncope during church on a Sunday morning. Sound familiar? Most physicians have seen numerous cases like this. We thought this was so common that we considered putting out an advisory notice to church leaders urging them not to have people stand very long at their services. Many of our colleagues also thought syncopal episodes on Sundays were very common, based on their recollections. But none of us could remember seeing a study that verified this perception. Thus, we set out to identify which day of the week patients most commonly present to our hospitals with syncope.

We hypothesized that the

number of cases of syncope would be highest on Sundays. We surveyed colleagues, and six out of nine primary care physicians at a rural hospital thought more syncope cases would present on Sunday. Five out of 10 cardiologists at a tertiary care center made the same prediction.

We obtained the medical records of all inpatient and outpatient emergency room visits with a diagnosis code for syncope in 1997 at a rural regional hospital and our referral hospital in a city of 110,000. We then compiled the day of the week the patients presented and the patients' gender and age.

There were 72 syncope cases at the rural hospital; 36 occurred in inpatients and 36 in outpatients. Ten of 72 patients presented on Sunday. Only one subgroup—men over age 65—(four out of 18 men) presented more often on Sunday. There were 268 syncope patients at the referral hospital—84 inpatient and 184 outpatient; 19 of these patients presented on Sunday.

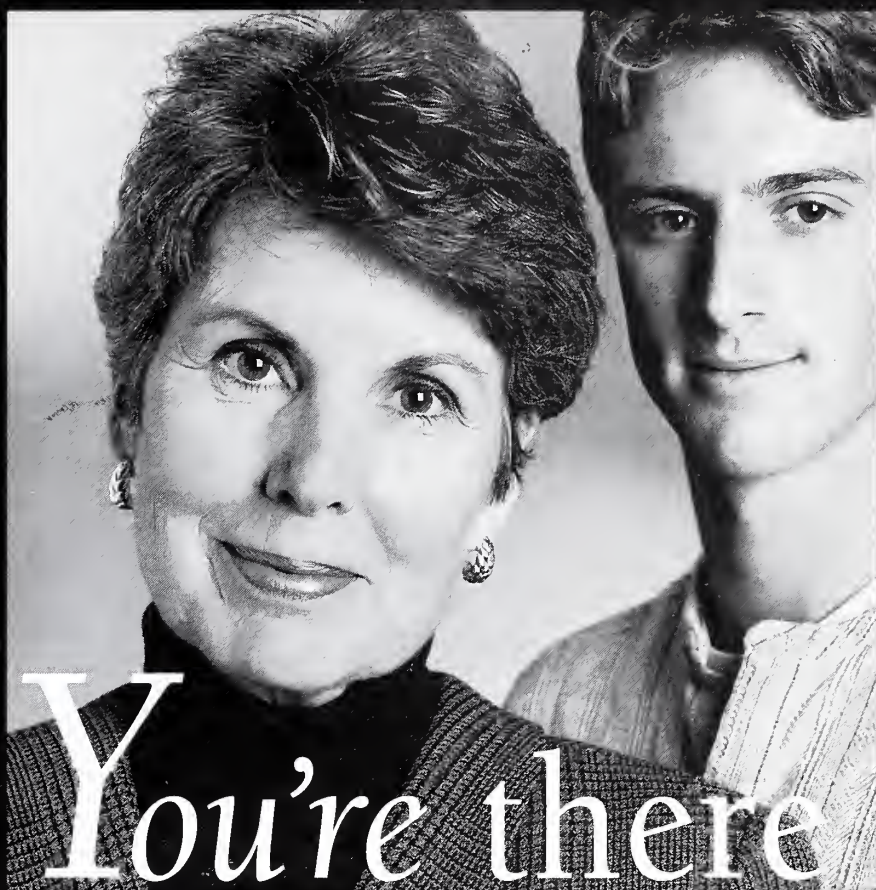
Our hypothesis that more syncopal patients present on Sundays appears to be wrong. Most outpatients presented on weekdays, particularly at the beginning of the week. Since these patients were not admitted, one might wonder if the syncope was somehow related to work or if it was a "hangover" effect.

*Greg Clark, M.D., F.A.C.P.
Internist*

Worthington, Minnesota

*Bruce Watt, M.D., F.A.C.C.
Cardiologist*

Sioux Falls, South Dakota



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The Enhancement Syndrome

Drawing inspiration from novelist Walker Percy, U of M bioethicist Carl Elliott, M.D., Ph.D., challenges the easy acceptance of Prozac and other enhancement drugs.

By Anne Welsbacher

Carl Elliott, 37, has written two books, 50 articles, six book chapters, 24 book reviews, and 64 lectures. These works have intriguing titles such as "Prozac and the Existential Novel: Two Therapies" and "The Unbearable Likeness of Being: Individuality and Enhancement Technologies."

When you ask him what drives this prolific output, he looks slightly puzzled and says, "Writing? It's always been fun." He learned to write at Davidson, the small liberal arts college in North Carolina that he says opened up a new world to him. On the other hand, he continues, medical school—which he calls a "narrow, technical enterprise"—most emphatically did *not* do this.

And then he'll turn the question back on you and listen attentively while you chatter on about decidedly uninteresting subjects. He'll suggest books by other thinkers in his field, like Peter Kramer ("Listening to Prozac"), David Healy ("The Antidepressant Era"), Lauren Slater ("Prozac Diary"), and his favorite author, Walker Percy, the southern physician-philosopher featured in much of Elliott's own writing.

Elliott's intense gaze, self-deprecating smile, and slight accent from his South Carolina childhood belie the worldly life he has lived—in Scotland, where he earned

his Ph.D. in philosophy at Glasgow University, in South Africa, New Zealand, Canada, and the United States, and in Germany, where his wife, Ina, an art student, was born. Along the way, he earned a reputation as an outstanding scholar.

"Carl is one of the smartest people in the field," says Jeffrey Kahn, Ph.D., director of the Center for Bioethics at the University of Minnesota. "He has a great mind and is a wonderful writer. He's written a ton—it's really quite daunting. It's also quite good."

Kahn hired Elliott, following an international search, to serve as the center's newly established director of graduate studies two years ago. In this position, Elliott mentors graduate students in philosophy who are pursuing a minor in bioethics. Elliott also teaches in the departments of pediatrics and philosophy. Next year, he begins a yearlong sabbatical to write yet another book, about the implications of a wide array of enhancement technologies that further the "pursuit of happiness," from self-improvement drugs to cosmetic surgery to gene therapy.

Elliott's writings on Prozac and other SSRIs challenge physicians to question why people have embraced these drugs so enthusiastically. Why are these drugs so

popular, and what does their popularity say about our society? His criticism of Prozac differs from that of critics like Peter Kramer. Whereas Kramer takes a largely biological approach, concluding that Prozac changes brain chemistry, Elliott explores its cultural implications. "I tend to look more toward cultural and spiritual explanations for alienation and anxiety," he says.

After his lectures, Elliott says, "it's almost always the case that someone will say, 'I'm on Prozac and this is why I'm offended by what you're saying.' That's not the reaction I want. Certainly the development of new antidepressants is a great thing. But I want to think about what we're giving up—about just how enthusiastically the U.S. has embraced these drugs." Recently, a man in the audience asked Elliott if he was on the payroll of Eli Lilly, the pharmaceutical company that manufactures Prozac. "I couldn't understand that one," he says. "I guess I've got something in there to offend everybody."

Elliott's current work examines another SSRI, Paxil, which the FDA recently approved as a treatment for social anxiety disorder. "One thing you notice if you travel is how aggressively outgoing we Americans are. We think of shyness as a social handicap. It's ironic that Americans are perceived as being so friendly, outgoing, extroverted—yet Americans are terrified of public speaking." Shy people can be diagnosed with social anxiety disorder, which might "handicap" them in their work, Elliott notes. Thus, Paxil can be prescribed for someone who fears eating in public, writing a check in a supermarket, or speaking in public. "Paxil will do very well here because people *are* afraid of these things," he says.

Elliott points out that different cultures respond differently to personality traits such as shyness. Although social anxiety disorder is relatively new in Amer-

ica, it has been around in Japan and Korea since the 1930s, he says. "Here in America we fear that *we're* going to be humiliated. But in Japan, the fear is that your behavior will embarrass or offend someone else—and that in turn will embarrass you," he explains.

Elliott worries about diagnosis rates for mental disorders—the rates tend to skyrocket once drug treatments for the disorders are available. "There's a market capitalism involved," he says. Drug companies have a vested interest in physicians diagnosing as many people as possible with disorders that their product can help. "So they have an interest in pushing definitions further out. It is in the interests of drug companies to go beyond the core group of people drugs can treat."

He cites David Healy, who argues that drug companies are in the business of selling not just drugs, but diseases, by promoting awareness of mental disorders. "This is why drug companies fund patient self-help groups and popular books about mental disorders," Elliott says. "And it's happened: Rates of diagnosis [of social phobia, once believed a rare disorder] have gone through the roof in the past decades."

Elliott's arguments about why and how Americans use enhancement therapies don't easily translate into "how-to" advice for the practicing physician. "That's part of the ambivalence about all this," he says. "That's why psychiatrists say, 'I agree it's terrible that the culture makes women worry about their bodies. But my concern is this patient.' In some ways, it's not fair to ask doctors to make these decisions."

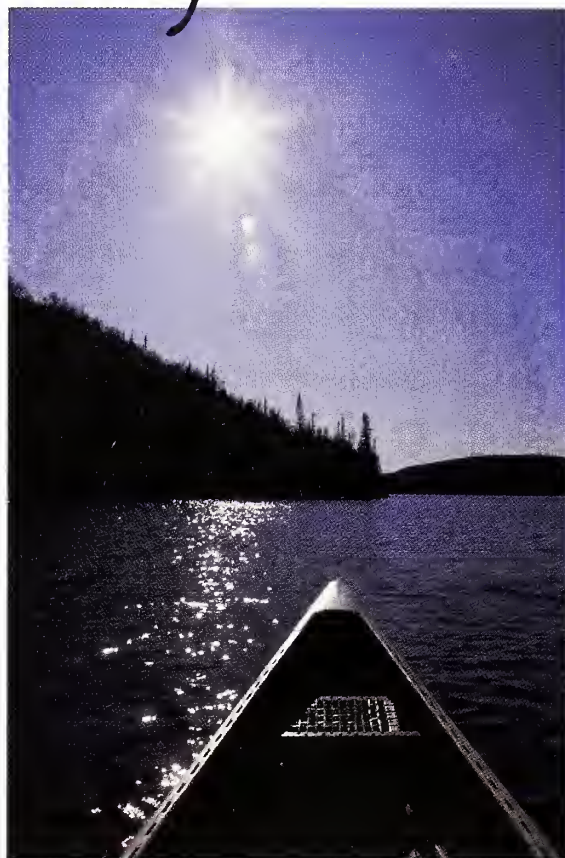
Nonetheless, says Jeffrey Kahn, Elliott's insights provide tools for physicians. "He writes so beautifully it's hard not to take a lot away from his work," he says. "Carl's writing is deep and rigorous. So people thinking



PHOTOGRAPH BY JOHN NOLTNER

ENHANCEMENT to page 45

Call of the Loon



Camp Discovery gives young dermatology patients a chance to be kids.



The smell is so bad that I angle the canoe to keep the breeze off the port side and out of my face. This is difficult, as the stiff wind pushes the bow back toward the beach and willow reeds. The wave chop sends spray into my face. The boy in the bow handles the paddle clumsily but with enthusiasm. "George [not his real name]," I say, "look at that loon that just surfaced." Its sleek black feathers are barely visible above the wave tops as it bobs on the surface not 10 yards from our bow. George scans the water but does not register the pointed beak and dappled body. His territory is the inner city. His recognition patterns are the dangerous corners, the drug runners, the safe houses.

"Have you ever been in a canoe before, George?"

"No. Never even been outside Detroit."

"Just hold the paddle so, pull straight back in even strokes, and I'll take care of the rest." I've canoed all my life. Even spent a summer leading campers on white-water rivers. But nothing has prepared me for canoeing with George.

The loon dives beneath the surface just as George spies it. He turns around and smiles at me with amazed, comprehending eyes. His skin is a mass of porcupine quills interrupted here and there by purulent swaths of eroded blisters and pink, healing skin. I first saw those eyes nine months earlier in the pediatric intensive care unit. George was prostrate with fever, blisters, pus, pain, and confusion. As I walked in the door my nose gave me the diagnosis

By Tor A. Shwayder, M.D.

and my eyes registered his fear. His large, beautiful brown eyes were surrounded by thick, spiny skin stretching over his cheeks and forehead. The smell was almost overpowering. I was expecting it; the residents and medical students with me were caught by surprise.

I aim the canoe toward an inlet with a marshy surround. "Ever been in an airplane?"

"Nope."

"Ever been on a lake?"

"Nope. It sure is peaceful. Not like my home."

"Tell me about home, George."

"Well, my mommy and daddy both work." (A rarity in Detroit from his socioeconomic class.)

"Do you have any brothers and sisters?"

"Yup. You met my sister. She brought me to clinic once."

George has epidermolytic hyperkeratosis. His skin has a defect in keratins 1 and/or 10. This causes the stratum corneum to form thick spines of skin that do not wish to desquamate. Between these spines, anaerobic bacteria collect, and their sulfurous discharge makes his entire skin smell like a bad sneaker. In addition, the lower levels of the epidermis are structurally unstable, leading to "lysis." This allows staphylococcus and other opportunistic organisms to enter and multiply. The patient becomes febrile, leukocytotic, lethargic, and downright sick.

George's sister is just finishing high school even though well into her 20s. She had a baby at age 14. She is a large, pleasant young woman with a ready laugh. I figured that George's undying good humor was genetically determined to balance his misshapen keratins.

The cattails loom off the starboard side. "Ever held a cattail in your hands, George?"

"Don't know what that is, Doc Tor."

We are at camp—Camp Discovery, organized by the American Academy of Dermatology for all the Georges we care for. These are children who would never take off their clothes to swim because of the extreme reaction it would cause in those at the pool or beach. These are children whose blistered exterior makes even a trip to Grandma's house an impossibility. Children whose extreme atopic dermatitis makes any regular camp hesitant to take them. I angle into a rivulet to get nearer the cattails.

"My oldest brother is in jail for selling crack."

"How about your next brother?"

"He's in jail too. Same thing."

It baffles me how any parent can raise a child in

a neighborhood where the only viable economies are liquor stores and crack cocaine. George pulls on a cattail, almost upsetting the canoe. The stem bends and frays but does not yield to his hyperkeratotic palms and inexperienced yanks.

"Why don't you have a phone?" Numerous times I have tried to contact the family to check up on him, to adjust the dosage of retinoids or antibiotics.

"My next oldest brother started to sell cocaine from home. My daddy cut out the phone and threw it in the trash. Then he kicked my brother out into the street." I have three children approximately the ages of George and his brothers. This concept of "tough love" isn't even in my realm of thought patterns. I marvel at the forces in his life. My familial worries revolve around issues that in comparison seem mundane. In George's neighborhood the decaying cinder-block apartments have grime and crimes oozing from every pore.

I pull out my pocketknife and cut the slender reed. George holds it in his hands and slowly turns it around, marveling at the glossy, hot dog-shaped brown head.

When I first met George he was horizontal, with IVs flowing, sheets pulled up to his neck, the stench pervading the room. Only his luminous eyes followed me as I came into the room. Was I friend or foe? Was I planning to hurt him? Would he understand me?

"George, I'm a pediatric dermatologist." There was no response, just a slight widening of his eyes until all of the iris was surrounded by white. It was a cold Michigan winter day. The snow and wind howled outside the hospital room.

"I know of a summer camp for kids with skin diseases. Would you be interested in going?" To my chagrin, he shook his head no.

The cattail gives him a nose tickle and he sneezes. The wind has died down a little, and the aspens by the shore rustle softly. I rotate the canoe to face back into this narrow Minnesota lake. The pine scent comes to replace the anaerobic sulfur. "Look at the moon rising," I say.

"How can that be, Doc Tor? It's the middle of the day." I decide to save the astronomical explanation for later and let George's senses take in this new experience. A box turtle slides off a log and splashes into the lake. George pivots again and points, entranced by the wildlife. The Belle Isle Zoo in Detroit

is the closest he has ever gotten to such creatures.

"Boy, this is the first time I've ever been outside Detroit, first time I've ever been on a plane, first time I've ever been in a canoe, first time I ever held a cattail."

Over the winter I stabilized George's skin but I had no cures. Until gene therapy is a reality, the best I can do is expand his horizons. I have long ago given up trying to "save" humankind. One kid at a time is more reasonable. I reintroduced the subject of camp a few visits later, and George cautiously consented.

Camp lasts a week. More "firsts" than can be counted happen on a daily basis. Kids aged 10 to 13 come from across the country, with a few from overseas. Physicians and nurses give of their vacation time to battle hummingbird-sized mosquitoes, swimmer's itch, and extremely variable weather, and to keep the children happy and moving. The medical staff is on call around the clock, fulfilling both medical and parenting needs. The children with epidermolysis bullosa usually require two to four hours to bathe, soak off, then replace all the bandages. Those with extreme atopic dermatitis, extensive ichthyoses, ectodermal dysplasias, scleroderma, all need their individual regimens. The nighttime tube feedings must be set up and dismantled. Many children ignore their regimens to feign normality (just like home!). By suddenly being both parent and doctor, I gained a huge respect for the complexity of these children's lives. Living with a disease on a daily basis cannot be learned from a textbook or in a busy clinic.

The last evening of camp, George is alone on the beach, kicking the sand, deep in thought. He has danced with a girl, a feat never imagined in his wildest dreams. "Fifty-one weeks, Doc Tor. Fifty-one weeks." "What is?" I ask.

I am emotionally drained. As a physician I can walk in and out of the examination rooms and leave the problems behind. I have found it necessary to

control my compassion. If I use up too much of it during the day, there will be nothing left over for my family by evening. But here at Camp Discovery I find my life intertwined with these "oh so normal" adolescents with atypical exteriors. So George and I muse together, sitting side by side on a log. I ignore the smell. He enjoys the physical reassurance of friendship.

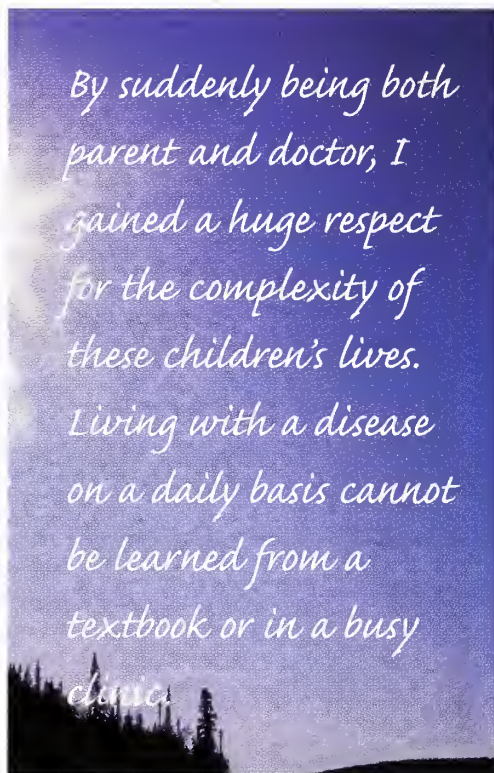
Later that fall I go to his school. George's mother has called me in desperation. Starting middle school, George hit a wave of cruel comments that shattered his fragile ego. I show his homeroom class slides from the summer camp and end with a modified quote from Martin Luther King Jr.: "... my children not be judged by the color, or texture, or smell, of their skin, but the content of their character." But more important, I give George a big hug in front of the class.

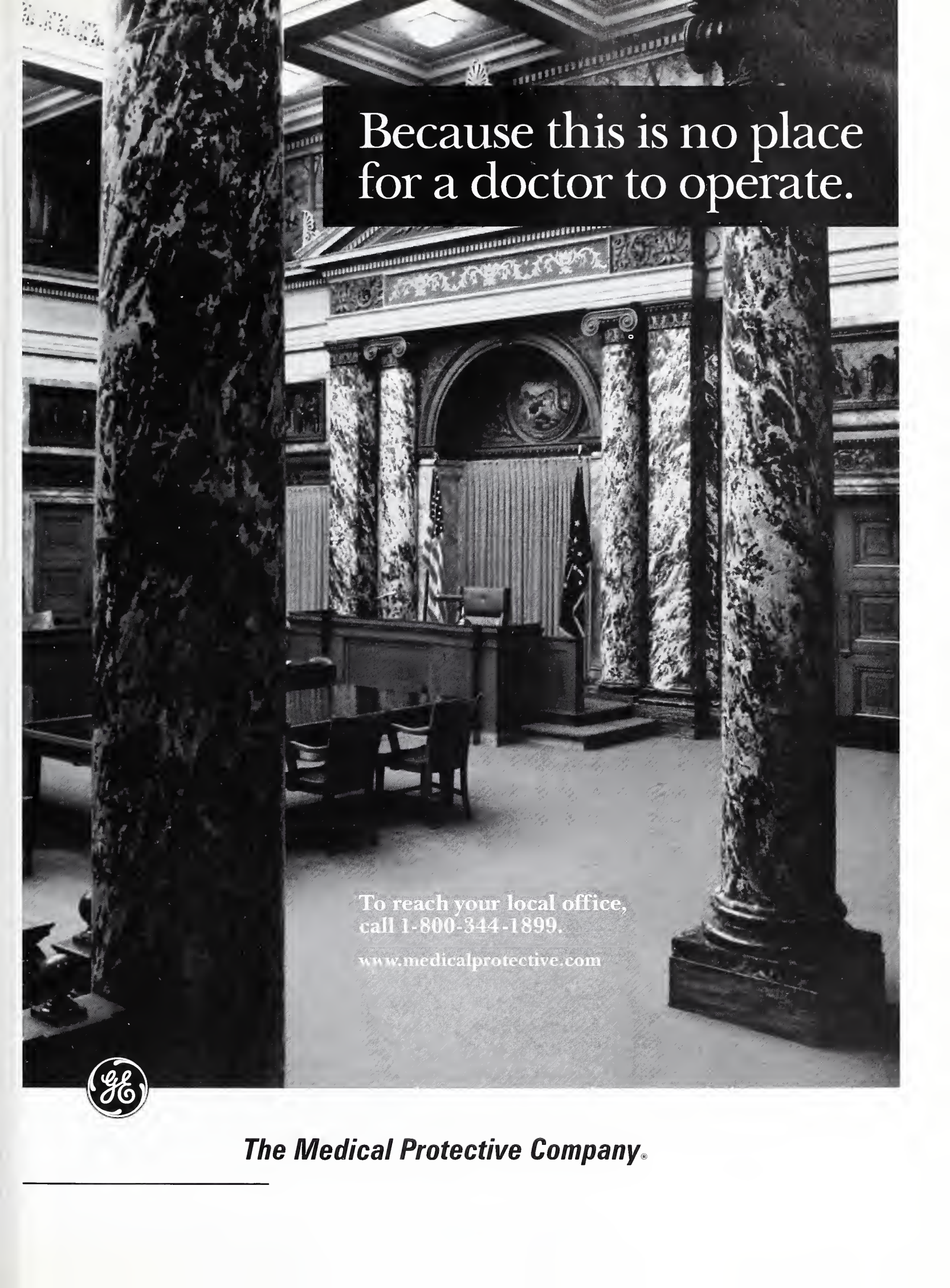
An epiphany strikes me there on the beach. It is the answer to my question. These children exist 51 weeks at home in order to live normally for one week at camp. The moon rises higher, a loon gives its eerie call, and purple shadows envelop us. The long wait has begun, but George's smile is radiant in the gathering darkness. We walk arm in arm back to the cabins. **MM**

Tor Shwayder is a pediatric dermatologist from Detroit, Michigan.

Camp Discovery takes place at Camp Knutson on the Whitefish chain of lakes in northern Minnesota. Camp Discovery was founded by Mark Dahl, M.D., chair of the Dermatology Department at the University of Minnesota Medical School. Dahl, who has a home on Whitefish, has housed doctors who volunteered at the camp. Information about Camp Discovery is available from Debbie Kroncke at the American Academy of Dermatology, 847/330-0230. The Web site address is <http://www.aad.org>.

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BOMBARDED

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Healthy Habits to Avert Burnout

Edward T. Creagan, M.D.

Today's medical environment threatens physicians with stress and even meltdown. Here are some ways to renew energy for the battle.

We live in an era of spectacular advances in biotechnology, imaging, and immunology. Techniques, therapies, and procedures that were unimaginable just five years ago are now becoming commonplace. Yet, despite this cornucopia, discontent in the medical profession is palpable. An armada of social, political, and economic factors threatens the integrity of the patient-physician relationship.

Talk of early retirement, burnout, and meltdown was seldom heard 10 years ago. Many of our mentors never dreamed of retiring. Most worked well into their 70s. Now, conversations with colleagues over cups of coffee and informal meetings at conventions invariably turn to the rigors of medical practice and the creative possibilities for loosening the professional yoke.

What are some of the reasons for this transformation in American medicine? There are as many reasons as there are clinicians, but the following issues cannot be ignored.

The development of the microchip and the evolution of the World Wide Web have completely revolutionized our society. At the 1999 commencement address at the University of Montana, Lester Thurow, Ph.D., longtime professor of economics at MIT, made some startling statements.

♦ Because of the Internet, we have unlimited options—Amazon.com offers 3.5 million titles, for example—and our decision-making processes become overwhelmed.

♦ One hundred years ago, the wealthiest people in the world built their fortunes from coal, gold, lumber, and land. Today, one of the wealthiest men in the world, Bill Gates, has none of these. His commodity is ideas.

♦ The explosion in technology gives every patient access to unlimited medical information, some of which is unreliable. Patients and their families are often armed with misinformation, which can create an adversarial relationship with the physician.

About 10 years ago, outsourcing, downsizing, and mergers and acquisitions entered the lexicon of corporate America. These trends soon affected medicine as well. Rural hospitals and small clinics could not survive financially without the administrative clout of larger institutions. In Minnesota, small clinics will likely either close or be absorbed into large, integrated health care systems. Physicians have a sense of being disposable or replaceable. Job security does not exist.

As the body of medical knowledge doubles every several years, many clinicians will find that their knowledge base is obsolete after 48 months. In his book "The Overload Syndrome," Richard Swenson,

M.D., writes that 3,200 new journal articles cross his desk each year. He would have to read 250 a day to keep up with the onslaught.

As a result of this relentless bombardment in medicine and other fields, 70 percent of workers say they are "used up" at the end of the day; 50 percent are "highly stressed." Some studies show that one-fourth of workers have a stress-induced illness.

So how can we handle the stress? What are some ways to sustain our energy as we head into the next century? While there are no quick fixes or easy answers, I can suggest a few guideposts.

♦ **A healthy diet.** To go the distance in today's corporate medical environment, we must be relatively physically fit. A quick formula to determine an adequate amount of calories per day is to multiply your weight in pounds by 10. For someone at 180 pounds, 1,800 calories a day should be adequate, with no more than one-third of these calories coming from fat. This means that the typical individual should

restrict fats to less than 50 grams a day.

♦ **Sleep.** Our grandparents slept an average of nine hours a day. We sleep on average seven hours or less. The sleep-deprived physician is irritable, makes mistakes, and is not well-suited to withstand the rigors of corporate medicine.

STRESS to page 49



ILLUSTRATION BY TOM CASMER

PALACE OF THE POPES, AVIGNON, FRANCE



Grand Rounds

MINNESOTA PHYSICIANS ON VACATION

*From high adventure to cloistered solitude,
Minnesota physicians find unusual ways
to get away from it all.*

By Howard Bell

Twilight in the Alps isn't so much red as it is a diffuse, delicate pink. Alpenglöw, it's called. In the softly lit silence of 10,000 feet, Paul Matson has time to reflect. It's the only chance the 44-year-old Mankato orthopedic surgeon gets, with five children and a booming practice.

Creative vacations, like Matson's, have the power to break the cycle of negative thinking, according to Robert Veninga, Ph.D., who studies professional burnout at the University of Minnesota's School of Public Health. Managed care, he says, has left many physicians feeling wrung out—stripped of their autonomy and beholden to Orwellian bureaucracies. It's not unusual for even the most dedicated and conscientious physicians to have moments of doubt about their profession and to dream of early retirement.

Vacations can help recharge the battery and put job-related hassles into perspective. Special getaways can be especially revitalizing during what Veninga calls the "fuel shortage" stage of job-related stress. Physicians experiencing fuel shortage may suffer from stress-related aches and pains. Nonclinical aspects of medicine have chipped away at their positive attitude, though they are still satisfied with clinical aspects of patient care.

Special vacations can even ease what Veninga calls the "chronic symptom" stage of job stress. Physicians at this stage feel exhausted and disillusioned with work. They're often preoccupied with the nonclinical pressures of practice-cost controls, preauthorizations, creeping overhead, red tape, and more patients but lower earnings. "They often think of the good old days, when medicine seemed less complicated and more rewarding," says Veninga. "Vacations can help, but don't just stay home and clean the gutters. Do something that restores vitality."

For Matson, that means getting high—alpine mountaineering, that is. The chair of the MMA's Board of Trustees was among eight mountaineers who spent a week doing what the French call *randonné*. In the birthplace of modern mountaineering, they trekked from Mont Blanc in Chamonix, France, to the Matterhorn in Zermatt, Switzer-

land, along the Haute Route—the high road—first mapped out a century ago to enable travel from one part of the Alps to another. Matson's group stayed at 8,000–14,000 feet the entire journey, traversing 100 miles of snow and glacier laced with crevasses that swallowed three Italians whole while he was up there.

Each mountaineer carried a 50-pound pack, skis, ropes, and an ice ax. On gentle slopes, they cross-country skied. On steeper descents, they down-hilled. Crampons attached to their skis gave them extra grip when needed.

On the steepest slopes, they stowed the skis and used ropes and ice axes. Velcro-like "climbing skins" helped them hug the sharpest grades. Twelve hours a day, they hiked, skied, and climbed, fueled by a 5,000-calorie-a-day diet. "Up there, you can eat as much as you want," Matson says. "I came home leaner than I'd been in 20 years."

At night, they slept in rock huts dug into the mountainside. Avalanches are less likely early, before the sun warms the ice, so they began the day at 2

a.m., sporting lighted miner's helmets. "Watching the alpine dawn come over the mountains in a slow way ... the majesty just unfolded," Matson recalls. Compared with the Rockies or Sierras, the Alps have a much deeper drop between peak and valley floor. "From Mont Blanc to the valley, you're looking down through 12,000 feet," says Matson. "It's much more dramatic and incredibly rugged."

Beyond the beauty, Matson likes the technical challenges of high alpine mountaineering. He likes the close camaraderie that develops when you must entrust your life to the person at the other end of a rope.

"Modern conveniences distract us from what's important in life. My life is so busy, I treasure those times I can be alone with my reflections in an incredible place. There's a powerful rejuvenating factor. In a place like that, there's no way you can't believe there's a God."

Matson pauses. "I just realized that that vacation was as good as I've ever had, and I rarely think about it," he says. "I just don't have time. It's so easy to just keep working."



Paul Matson, M.D. (in yellow jacket), treks in the Alps for a rigorous rejuvenation.

Different Strokes

When Don Asp vacations, he likes to surround himself with squalor and disease. "I don't golf," explains the 63-year-old St. Paul family physician, a practitioner with Bethesda Family Physicians. "And I don't get much pleasure from sitting on a beach." Instead, he prefers deworming children and debriding skin lesions in the jungle villages of Honduras. Minnesota-based International Health Service organizes the annual two-week trip. Asp says 14 physicians, mostly Minnesotans, vacationed there last year. "I come home more refreshed than I feel after a vacation doing nothing," he says.

Asp and his colleagues don't have the luxury of electricity there, so they work with the sun, from about 6 a.m. to 6 p.m. After breakfast—black beans, rice, coffee, and fruit—they pile into pickups and travel on kidney-rattling roads to isolated villages, where they set up a makeshift clinic, sometimes in someone's home. Are we having fun yet? Absolutely, says Asp.

Foreign fruit companies own most of Honduras—the original banana republic. "One thing about a vacation like this," says Asp, "it affects your political and social attitudes about people truly in need not by any

reason of their own. We treat diseases of poverty and despair." Last year, more Honduran children died from upper respiratory infections than from Hurricane Mitch. Mitch just exacerbated diseases already there.

One of Asp's favorite patients was a 70-year-old artist. In his lifetime, he had restored murals, frescoes, and other art in 10 Honduran churches. But he had never been to a doctor. "The man was a gifted artist who couldn't afford shoelaces. Sometimes you see very sad things."

Skin infections are common. So are parasites. "One little boy coughed up a big roundworm right onto the clinic floor. That was an impressive sight," recalls Asp. "Most of the kids are malnourished because of worms."

Asp makes do with whatever drugs he can get. "You find out you can do a lot with a very limited pharmacy. These people are pharmacological virgins who haven't built up resistance to antibiotics. Infections look much better in a couple of days."

The physicians perform minor surgery under local anesthetic, start IVs, and do an occasional biopsy. "We've had to amputate some fingers and remove some skin lesions, too," he says. "You do what you have to do."

Adventure Man

Bruce Johnson, M.D., often feels he needs a vacation to recover from his vacations. "Our family trips are not particularly restful," says the North Memorial cardiologist with Cardiovascular Consultants.

As you read this, Johnson is battling class-five rapids on the Zambezi River in Zimbabwe. Next to him are his wife, Peggy, and their three teenage daughters. On a side trip, they're canoeing the Zambezi's Mana Pools, home to an exceptionally dense concentration of crocodiles and notoriously territorial hippos.

No stranger to Africa, Johnson established an open-heart surgery program at a Nairobi hospital while volunteering for Children's HeartLink, a Minneapolis-based international medical charity that provides treatment for children with heart disease in developing countries. At the Nairobi hospital in 1997, he performed valvuloplasties and angiograms as a HeartLink volunteer.

In 1998, Johnson attended his eldest daughter's

wedding in Tanzania, where she studies elephants for the World Wildlife Fund. Lions were among the uninvited guests and prairie fires burned as the couple exchanged vows.

Who says vacations need to be restful to be rejuvenating? Adventure vacations off the beaten path are just



Bruce Johnson, M.D., and his family seek excitement in Australia, Africa, and other exotic destinations.

Asp says he and his colleagues have never been threatened or felt unsafe. Rather, they're made to feel welcome. "It's enormously gratifying to see all you can do for these people," says Asp. "The doctor-patient

relationship is very much intact in Honduras."

A 10-year-old girl lay gasping in septic shock. "Is she dying?" the child's mother asked. "Yes, she is," Asp replied truthfully. Not about to give up, the medical team intubated her and administered steroids, antibiotics, and fluids. "Miraculously, she survived," says Asp. "Had we not been there, those would have been her last breaths."

Asp finds these "vacations" to be among the most uplifting experiences in his life. "It definitely makes me a better doctor at home," he says. "Some of my colleagues who were profoundly burned out come back very rejuvenated. Vacations like this remind you why you went into medicine. This is how I recharge."



Don Asp, M.D., examines a Honduran girl in her Sunday best.

what the doctor ordered—the antidote to Johnson's hectic practice, he says. While scuba diving off Australia's Great Barrier Reef—they've done it more than once—he and his family have come eye to eye with man-eating sharks. On a nighttime boat trip up Belize's Monkey River, they searched for the elusive jaguar. "We saw lots of eyes watching us, but no jaguars."

Water is a recurrent theme in Johnson's getaways. He knows what it's like to shoot the raging waters of the Chatooga River gorges—made famous by the movie "Deliverance." One of his strangest experiences occurred while kayaking in the dark along the Pacific Ocean side of Vancouver Island. Whatever they touched turned a bioluminescent green. Diatoms, perhaps. "When you walked the beach, the sand around your footprint glowed green. Every paddle stroke and every fish we spooked left a streak of green like underwater fireworks."

Johnson says his vacations are harder to plan and more expensive than most traditional getaways, but the rewards are greater, too. "It may not be physically restful," he says. "But it's mentally restful."

Leisure Learning

For a gentler pace, we turn to John Sanford and Julie Møller. The husband-and-wife physicians are retired from the Duluth Clinic, where Sanford was a general surgeon and Møller was an internist. Last April, they took a walking tour of southern France. They explored the village of Glanum, first a Greek settlement, then Roman. They contemplated the aqueducts of Pont du Gard and marveled at the Palais des Papes in Avignon. They ate lunch at a café in Bonnieux, where author Peter Mayle, inspired by the valley view, wrote "A Year in Provence."

A knowledgeable guide led two walks each day—none longer than three miles. In between, they had plenty of time to explore on their own the mountain-top villages and sample exquisite chocolate and cheeses in the cafés. They hiked in the Luberon Forest, toured the perfume factory at Grasse, and visited the Marquis de Sade's crumbling castle.

Their favorite site, Gorges du Verdon, is a deep canyon at the edge of the French Maritime Alps, some 5,000 feet above sea level. "You'd look down at a beautiful bowl of green and farms," says

Sanford, "and across to the distant snowcapped Alps. The air was clear and pure. It was peaceful."

Elderhostels have been a favorite way for Sanford and Møller to learn about a locale while on vacation. In Wales, they learned about Welsh music and the rich Welsh culture in danger of extinction. At the London School of Economics, they learned about Shakespeare's London. In Dundee, they studied Scottish architecture and learned what a Scotsman wears beneath his kilts—briefs. "Not everyone takes trips like these," says Møller. "You meet interesting people who share your interests."

On a Smithsonian tour of European Islamic heritage, they traveled through Spain, Portugal, and Morocco with a professor from the College of William and Mary. They explored the giant mosque of Grenada, which conceals within its walls an entire cathedral built at a later date. Layers of culture and centuries of history have a way of putting in perspective medicine's often stressful minutiae.

Retired physicians John Sanford and Julie Møller learn about history and cultures on walking tours.



Dream Vacation

As if in a dream, Abbott Northwestern anesthesiologist Mike Menzel awakens in a strange and steamy tropical paradise. The forest canopy screeches and squawks. As he operates on patients in his makeshift jungle operating room, he glances over at his wife, Kathryn, who is sterilizing instruments and fussing with fidgety children. He thinks to himself, How lucky I am to have Kathy. How lucky we are to be here.

This is not a scene from some Harrison Ford adventure-romance. For Menzel, this is reality two weeks each year. It could be reality for any Minnesota physician who, as Menzel puts it, "steps outside the box."

"Traveling Medical Banditos" is the name of Menzel's group. Destinations: Guatemala, Venezuela, Colombia. Menzel and the other Banditos correct cleft palates and hand and finger deformities, remove neck masses, and repair hernias. The six physicians, most from Minnesota, and their spouses pay \$1,000 each for lodging, meals, and transportation. Some of them make a small donation to defray medication costs. They bring most of the medical supplies they will use. The core group of Banditos recruits 10 or 15 more colleagues to join them. Most are Minnesota surgeons and anesthesiologists. "We never have trouble finding people to go," Menzel says.

After they've set up camp, anything can show up at the tent flap door. Such as the 13-year-old boy kicked in the face by a spirited horse. "Beneath a deep laceration that penetrated the sinus," says Menzel, "we found a piece of embedded horse hoof. Had we not been there, the boy would have died within a few days, of a massive infection."

Many of Menzel's patients walk for two days to see him. Others come by boat or bus. Once there, they are demonstrably grateful for whatever the doctors can do for them. "Much more so than our patients back home," Menzel notes. "It's humbling to see how resilient these people are. They live in such poverty, yet they have so much dignity and are so loving. We can definitely learn from them."

Menzel likes many things about these vacations. "Most of us come back feeling pretty blessed with what we have and feeling we can do with a lot less. That's healthy. And it just plain feels good to provide life-changing care to very poor people who would otherwise do without."

Third World medicine doesn't require much paperwork, another aspect Menzel finds healthy. No HMO hoops. No preauthorization hassles. Much of the stress

in American medicine is absent from the Third World picture.

Then there's the energizing thrill of cultural immersion. "Most people who travel overseas go to insulated resorts filled with people from their own country," he says. "When you step outside the comfort zone, you don't just experience the climate, you experience a culture."

Speaking of comfort, Menzel says that contrary to stereotypes, local food and water rarely give the Banditos gastrointestinal troubles. Their meals, cooked by local families, are surprisingly good. Sometimes the Banditos make do with a thin mattress on the floor. Once, they stayed at a house a few feet from the dust and diesel fumes of the Pan American Highway. "It's potluck whether you're going to have running water," he says.

For most of the physicians Menzel takes with him, the trip is a life-changing event. "They come away feeling they've gained more than they've given," says



Mike Menzel, M.D. (left), and the Traveling Medical Banditos treat poor people in South America.

Menzel. "People who go on these trips say it's better than any regular vacation they've been on. Most of these countries are very safe—safer than some American cities. If there's a clear and present danger, we don't go there."

Thinking Is the Best Way to Travel

Every year, Ed Creagan takes a three-day vacation—from talking. For a medical oncologist who doubles as president of Mayo's medical staff, nothing could be better.

At the Demontreville Jesuit monastery near Lake Elmo, Minnesota, the day begins at 7 a.m. with a short prayer. Breakfast in a communal dining hall is eaten in silence. "We acknowledge each other with a nod or smile," says Creagan, "but it's an unspoken covenant to respect each other's privacy." The retreats are open to men from all walks of life regardless of religious belief.

The Jesuits provide some general topics of reflection. This year's theme was gratitude and joy. During the day, Creagan walks the grounds, sits by the lake, prays, reads in his tastefully furnished private room, and reflects on life. "And I always bang out six to 10 miles [running] each morning," he says. "I bring hand weights with me, since I lift weights every other day."

"When I go back to work, I'm ready to rock 'n' roll. I can focus on what's important." Much of what bombards a physician each day is not important, Creagan asserts. His first day back from this year's retreat, he went into his office, and when he closed the door, his magnetic nameplate fell to the floor. "Was that symbolic or what?"

Don't expect vacations to solve all your problems, Creagan insists. "You are always you, no matter where you are. There's always a piece of your soul trying to put itself back together. A vacation is not going to clean up the internal messes."

Nevertheless, Creagan finds tremendous value in getting away—as long as the vacation has a "schmooze factor"—a connection with people, animals, nature, or yourself. Vacations, he believes, should have some spiritual component—anything that stirs the coals within. "Too many physicians make the mistake of filling the hole in the soul with a BMW," he says. "It doesn't work. The hole gets bigger. Next you need a Mercedes. You end up with chemical dependency and wacko behavior. Without some spiritual component in your life, it's difficult to keep fire in the belly."

Creagan has some advice for physicians going on vacation. Never take your beeper or laptop. "You might as well not leave the office." Don't spend your first day back from vacation at work. And finally, don't go to the Mall of America.

Howard Bell is a medical writer living in Onalaska, Wisconsin, and a frequent contributor to Minnesota Medicine.



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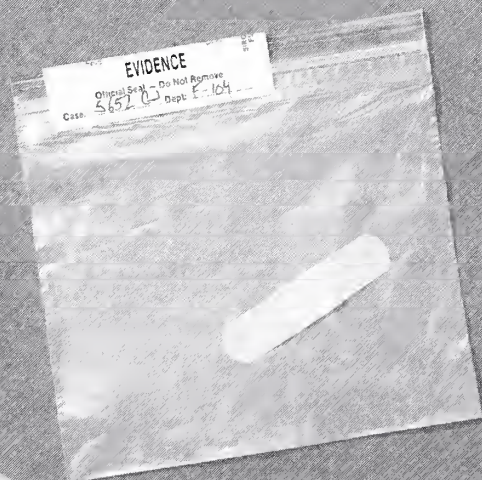


Exhibit A:

Adhesive bandage, which plaintiff alleges defendant pulled rapidly from skin, violently tearing three hairs from plaintiff's arm, which resulted in severe shock, trauma, disfigurement, chronic debilitating pain and permanent psychological damage.

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Time Out

*Physician sabbaticals can provide
relief from burnout,
a chance to learn new skills,
and time for introspection.*

By Miriam Karmel Feldman

By the time she was 41, Val Ulstad, M.D., felt burned out. In addition to attending a large medical practice, she was chief of cardiology for HealthPartners and was teaching a cardiology course at the University of Minnesota Medical School. "I definitely needed a break to sort out what I wanted to do next, and to tackle my tendency to get hopelessly overcommitted," she says.

Ulstad was able to do just that with the help of two grants from the Bush Medical Fellows Program (BMFP), a sabbatical program for physicians, sponsored by the Bush Foundation. She spent one year of her leave at the Kennedy School at Harvard, where she earned an M.A. degree in public administration. She spent another six months completing a master's degree in public health at the University of Minnesota.

Ulstad intended to use her new credentials as a medical school administrator, but while on leave she realized that she wasn't ready to stop practicing medicine. "I'd become a physician to be involved in service, and to be taking care of people. I realized I wasn't ready to quit doing that," she said in a recent phone interview. Ulstad spoke from the Minneapolis Heart Institute's first satellite office, in the south metro area, where she works full time as a cardiologist. Now, rather than working three jobs, she's doing one. "I love it," she says.

The clarity and insight that came to Ulstad during her time off from practicing medicine are among the hoped-for outcomes of a sabbatical, according to Ilene Harris, Ph.D., who has been a consultant to the BMFP since its inception in 1979. Harris, who is a professor and director of the University of Minnesota Medical School's Office of Educational Development and Research, says sabbaticals can provide time to achieve new goals and to find new dimensions in one's personal or professional life.

Typically, sabbaticals are taken midcareer, which can be a time of questioning whether there is more to life. "It's a time when people are asking, 'What do I do now?'" Harris says. "With every decade or so, whether you've had real successes or feel you've failed in major ways, people are asking those questions," she says. "That may be the time you need to take a sabbatical."

Burnout wasn't the issue for Michael Wilcox, M.D., who was in family practice in New Prague before becoming a Bush Fellow in 1983. "I didn't go into it with the thought that I needed a break," says Wilcox, who is the medical director of Queen of Peace Hospital in New Prague and the incoming director of the BMFP. He approached his sabbatical as a time to learn new skills. During his time off, he studied emergency room procedures at several metro-area hospitals, then developed a new emergency room program for

Queen of Peace Hospital.

Wilcox believes physicians typically take a sabbatical for one of two reasons. "One is a need to do some introspective analysis of who they are, where they're at, and where they want to go with their lives," he says. The other is to shore up leadership skills, for physicians who are headed toward administration. The two, of course, are not mutually exclusive.

The BMFP is "one of a kind," says Harris, in that it provides monthly stipends, tuition support, and a travel allowance. But it is not the only sabbatical opportunity for physicians. Park Nicollet Clinic, for example, allows physicians to apply for a three-month sabbatical, without pay, after seven years. However, only a handful of the system's more than 500 physicians take advantage of the program each year, according to Patrick Moylan, director of professional practice resources at Park Nicollet.

Loss of income might be one factor holding physicians back. Ulstad suggests another: It takes courage "to step out from the crowd." As she puts it, "Medicine is very much a fraternity. If you step out of line, the consequences are that you will feel lonely and scared." Having said that, she notes that her colleagues supported and encouraged her endeavor. But they were also wary about the idea of taking time off. "If you leave, how can you ever come back?" she recalls them asking. "A lot of physicians are so miserable, they think that if they stop, they won't want to come back."

Those are the physicians who might benefit most from a sabbatical, according to a report by Harris and Jon Wempner, M.D., who has been director of the BMFP for 20 years. In their evaluation of the program, which appeared in the October 1996 *Academic Medicine*, they wrote that most physicians begin their sabbatical feeling "devoured by hectic practices, with insufficient time and energy for personal growth, professional development, family involvement, or avocations. They experienced a sense of tedium, of stagnation, of being on a treadmill." By the end, however, whether they'd been away for three months or 12, the physicians felt revitalized and rejuvenated.

The benefits of a sabbatical are so profound that Harris encourages physicians to find ways to take a break. She suggests that group practices institute plans that allow physicians to take time off to try something new—"something that goes beyond direct patient care." For example, physicians might be given a leave to develop a community-oriented program involving patient education or ethics. Or physicians might arrange exchanges between clinics, especially if that allows them to practice in a different neighborhood, with a different

patient population. It's the contrast with what one is accustomed to that makes the sabbatical so valuable, Harris says.

Moylan says Park Nicollet's physicians have used their sabbaticals to visit other medical facilities, do medical writing or research, accept a visiting professorship, practice in an underprivileged area, even to travel or pursue a hobby.

The results can be "incredibly freeing," Ulstad notes. "I think that a lot of physicians today feel stuck. A lot of us went into medicine to have infinite variations of things we could do. We've forgotten that. A sabbatical is a vehicle to do that."

MM

Miriam Karmel Feldman is a freelance writer in Minneapolis.

Bush Medical Fellows Program

The Bush Medical Fellows Program offers practicing physicians a paid sabbatical to pursue personal and professional development. But there's a slight catch: Goals selected by the physicians must also meet a health care need in their community.

The Bush Foundation launched the program in 1979 to address the health care needs of rural Minnesota. Today, physicians in North Dakota, South Dakota, and western Wisconsin also are eligible to participate, as are Twin Cities-area physicians who have an interest in focusing on an unmet need or underserved population. Applicants must be at least 35 years old and have a minimum of seven years of clinical practice. Applicants must also present a clear statement of their needs for development related to opportunities to use their new knowledge and skills to serve their community.

Fellowships, which last from three to 12 months, include a stipend, tuition, and travel money. Physicians may choose preceptorships, conferences, seminars, retreats, site visits, academic courses, reading, writing, and lecturing or teaching. Past participants have studied in areas such as administrative medicine, emergency medicine, hospice care, sports medicine, and immunology, among many others.

For 1999-2000, 30 physicians applied and 13 fellowships were awarded. Inquiries should be directed to Michael Wilcox, M.D., Queen of Peace Hospital, 301 Second Street, New Prague, Minnesota 56071.

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In the early 1980s, a little squall blew up on the usually calm sea of pediatrics. Growth hormone had been a rare, expensive medicine, each gram extracted from thousands of pituitary glands and laboriously purified. It was far more precious than gold, and only extremely short children with a proven deficiency in their own growth hormone could hope to get it. Then, in one of the first commercial triumphs of DNA technology, bacteria were persuaded to make *human* growth hormone. It was purer, more natural to our species, and most important, far less expensive. It wasn't cheap, but it was suddenly accessible to many.

Then the other shoe dropped. In the mid-1980s, studies published in the *New England Journal of Medicine* and elsewhere showed that short children with *no* growth hormone deficiency could be made a few centimeters taller if they were given human growth hormone.

So at the dawn of the age of gene technology we already faced a decision: Do short children (and their ever-anxious parents) have a "right" to be made taller by hormones even when they have no apparent deficiency or illness—when they are short, but "normal"? And, for that matter, is it ethical for physicians to treat them? And who would pay thousands of dollars a year for this cosmetic endocrinology?

Strong cultural preferences clearly played a crucial role. Shortness is part of the normal variation of the species. Only strong cultural bias could make parents want to "cure" it. And, of course, this bias also intersected with gender. As pediatricians well know, children who were brought in complaining of shortness were traditionally boys. Girls tended to come in when they felt too tall. (It so happens that they can be treated too—with estrogens that accelerate puberty and thus ultimately

By Melvin J. Konner, M.D., Ph.D.

halt growth.) But girls who feel too short can also get help from growth hormones; increasingly, girls request it so that they can become taller.

Now before you wring your hands too freely, put yourself in the pediatrician's place. You feel the pinch of societal pressure, perhaps even of ethics, telling you that normal human variation cannot be a treatable illness. But you are also pledged to help the child you have in front of you. Set aside the misguided goals of the parents. The child before you—perhaps at the point of tears—feels out of place for being two standard deviations away from the mean in height. And, objectively, he *is* out of place. Performance in sports, social acceptance, avoidance of ridicule, even romantic success may well hinge on your decision. You have something to offer. Do you withhold it because your wisdom, or society's, says that the child should accept nature's disposition because it is "normal"—despite the fact that it plainly causes suffering?

Let us say that, considering only the risk-benefit analysis for the short child, you decide to offer the growth hormone. Human discretion being what it is, your pharmaceutical magic becomes known

throughout your town. Before very long you are getting visits from boys of average height, wanting to be tall. Finally, a gangly 6-foot-2-ish high school freshman shows up. He is already a rising star on the basketball team. If only he could grow another inch or two. ...

It is actually unclear that growth hormone would have the requested effects in these latter cases (no one is enthusiastic about funding or doing the requisite research). But beginning with a study in 1990, the hormones' height-enhancing effects have been overshadowed by an even more dramatic finding: Growth hormone slows some of the major effects of aging. In particular, over a period of six months, bone density and muscle mass were maintained or increased in elderly subjects, while control subjects lost both, as most older people do. Images of octogenarian he-men provoked inquiries to physicians throughout the world.

Cardiac risk has so far limited the use of growth hormone as an elixir of youth, although research continues. But a much more widely used hormone, estrogen—along with its growing corps of chemical cousins—had already served as a fountain of youth of sorts for women. Menopause, a perfectly "natural" end to the ovaries' cycles, occurring around age 50, produces an increase in the risk of osteoporosis and heart disease that, while not as abrupt as a hot flash, is more dramatic and step-like than the corresponding changes in men. Estrogen-replacement therapy protected women against these risks while reducing the transient discomfort of hot flashes in the bargain. It too was controversial. Some groups of women seemed to run an unacceptable risk of breast cancer caused, or encouraged, by the hormone. Some also cited an ominous variety of unknown but conceivable effects of what one critic called "a massive drugging of women." But few women were frightened away.

As the popularity of estrogen replacement grew in the 1990s—predictably, under pressure from women wanting it, not from drug purveyors pushing it—bigger and better studies demonstrated that the cancer risk was small, and that there were benefits to women in terms of overall mortality. Leaving aside



quality-of-life questions, the research data justified treatment for most women for at least a few years. Soon there were new compounds such as tamoxifen and the newer raloxifene—called “partial estrogen receptor agonists,” since they mimic some effects of estrogen but not all of them—which raised a strong hope of picking and choosing among effects. Tamoxifen reduces breast cancer recurrence in affected women; in a recent study of 13,000 healthy women at high risk for this tumor, breast cancer incidence was reduced by 45 percent. It may prove to protect against bone loss and heart disease while not only not *causing* breast cancer, but actually helping to *prevent* it. Not surprisingly, men have started to look longingly at the enhancing effects of estrogen, and studies of androgen-replacement therapy are under way.

‘ENHANCING’ ADAPTATION

Estrogen replacement is arguably a “natural” solution to a natural “problem.” Menopause is not an illness but a stage of life, albeit one that entails increased risk of illness. Perhaps that is why replacement therapy slipped into widespread use with relatively little fanfare or philosophical opposition, despite being, in essence, a life-enhancement drug. That was not the reaction to Prozac, an antidepressant that by the early 1990s had become as much a household word as Clorox. Followed in rapid succession by other, related drugs—Zoloft, Paxil, Effexor, and Wellbutrin, to name a few—Prozac would quickly and decisively change the way we think about the meaning and treatment of depression.

Most of these drugs have this in common: They block the transporter for serotonin—the chunk of molecular machinery in the nerve ending that sucks the neurotransmitters back into the cell, only to be released again. This sponging-up phase is vital to the function of the synapse, a busily dynamic, substance-filled gap between nerve cells. Without knowing the underlying biological roots

of depression, or whether it is really in any sense *caused* by the sponging up, we nevertheless do know this: Block the transporter; slow the sponging process a fraction of a hundredth of a second, and the extra serotonin hanging around in the gap will, in a week or two, cause the depression to lift. It does not work in every case, and many people suffering from depression get better on their own. But while placebo-treated depressions have a 30 percent improvement rate, serotonin reuptake treatment yields a 60 percent rate, a doubled improvement.

But by 1990 something new became apparent. Far larger numbers of people were being treated with these drugs—SSRIs, or selective serotonin reuptake inhibitors—than had ever been treated with antidepressants before. Two hypotheses were suggested to account for this trend. First, it might just be that the side effects were milder. Depressed people taking the older medications had to suffer classic symptoms: dry mouth, constipation, hesitant urination, erectile difficulties. This price, added to the one paid at the cash register, made the older drugs too costly, overall, to be taken except when depression was incapacitating and resistant to prolonged psychotherapy. In addition, such symptoms as mouth dryness were so ubiquitous

Cardiac risk has so far limited the use of growth hormone as an elixir of youth, although research continues. But a much more widely used hormone, estrogen—along with its growing corps of chemical cousins—had already served as a fountain of youth of sorts for women.

that the patient always knew the drug was there. Side effects, as it were, constantly tapped you on the shoulder, saying: By the way, friend, you may feel better, but *you are not yourself*.

Prozac and kin were different. They suppressed libido, true, and that cost loomed larger in people’s minds as treatment continued. But otherwise, patients felt physically normal. There were no constant physical reminders. More important, there were no cardiac risks. Also, there were hints that the new agents worked not just against depression but against the pervasive anxiety of our tense, neurotic age. People—one becomes hesitant to call them patients—began to say that they felt more like themselves than ever. They felt as if they were



growing into and becoming themselves for the first time. Some psychotherapists, such as Peter D. Kramer, the author of "Listening to Prozac," were suggesting that these medicines changed personality, and that people liked the change.

Everyone who wanted a third-party payer to foot the bill for Prozac had to get a diagnosis. This would be a label in the spectrum of mood or perhaps anxiety disorders in the DSM-IV, the standard diagnostic manual of mental health conditions and disorders. But there were tens of millions more such diagnoses than there had been a decade earlier. This could be explained by a vast unrecognized epidemic of depression and anxiety, which psychiatric epidemiologists had always claimed existed. But it might also mean that millions of people who felt kind of blue a lot just wanted to feel better and that psychiatrists were quite prepared to stretch the diagnostic categories.

Children were not exempt from this process: They were getting a different kind of drug for a different

reason. Ritalin, or methylphenidate, went from being a medicine to calm kids who were bouncing off the proverbial walls—or at least daydreaming and fidgeting constantly—to being a grade-improvement potion for many millions of children. Find your attention flagging in algebra? Get your mom to persuade the pediatrician to write a scrip for Ritalin.

Of whom among us might it not be said that we would do better with enhanced concentration?

Studies had long shown that stimulants—Ritalin is related to amphetamines—improve both concentration and performance in normal children and adults, as well as in hyperactive children or those with attention deficits. Soon the diagnosis of attention deficit disorder (ADD) was a widely

cast net. A 1996 cover of *The*

New Yorker showed a teacher at the blackboard, where she had carefully written "Readin', 'Ritin', Ritalin."

Consider even the hard-core hyperactive child—four out of five times, a boy. Critics have asked whether this boy is really any different from Huckleberry Finn, or whether that spunky hero of America's classic fiction would, today, have simply been medicated out of existence. Huck Finn comfortable in the church pew on Sunday, making A's in spelling and rhetoric, eating his peas with the best manners of the parlor, while the raft drifts off unoccupied, dead to the hope of adventure. Are we merely medicating boyhood?

Worse, say the critics, what happens when we discover that most children can do better in school and even at games when they take Ritalin, with a minimal burden of adverse effects? In all fairness, in a world where only the schooled succeed, are we right to withhold a means of improving school adaptation for millions of hard-pressed children competing fiercely for a niche? But if we give it to them, then what meaning does attention deficit really have? Does the target of treatment become the report card? And in that case, who pays?

As with depression, when "he doesn't pay attention" gets an official diagnosis in the clinician's manual, we have an illness, and the power of third-party payment is legitimately invoked. Most parents will cheerfully let a child be labeled if that classification sets in motion a train

of events that they think will help. Add the fact that adults are getting the diagnosis of ADD more frequently, and children more often the label of depression, and we have millions of new candidates for the corresponding pharmacological treatments. We may have evolved in a world of activity and movement, but we now have a culture of physical stasis and focused, often passive attention. Don't all children, and even all adults, have a right to legitimate medical means to prevent maladaptation to that culture? Or do we mean "enhance adaptation"? Well, that's the rub. If we are preventing or intervening in *maladaptation*, the illness model fits. If we are only enhancing, we feel queasier invoking the same model.

PRESCRIBING FUN?

Which brings us to Viagra. Few drugs in history have attained such widespread use so fast. Tens of millions of prescriptions, fortunes made by large and small investors, a black market, a spate of fake, silly imitations, the promise of several real ones under new patents and brand names, and sly grins on the faces of men and women circling the globe—all this occurred within months of FDA approval, and at a cost of perhaps six deaths, apparently due to the doubling up of the drug's effects with those of nitrates used in the same men for heart disease.

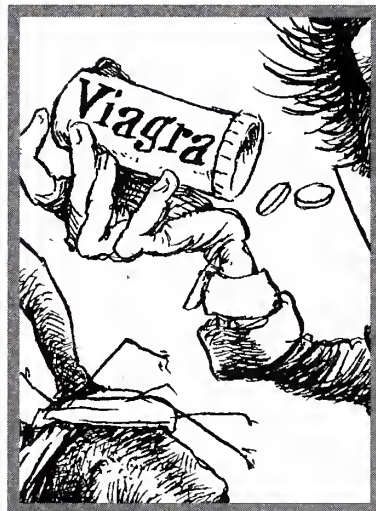
Viagra, officially, is a treatment for male impotence. Or, more exactly, it is an agent that makes penises hard for a couple of hours. It starts its work within 45 minutes and is largely cleared from the blood a few hours later. When a man is not having sex—presumably, most of the time—Viagra and its metabolites are simply not there. For the man not taking nitrates, it is virtually without any known adverse effects. It works by enhancing the effect of nitric oxide, found in just the last decade to regulate blood flow into the penis. For the middle-aged or older man, or the man whose erections have been compromised by diabetes, arterial plaque in the penile vessels, or any of scores of common drugs—including most antidepressants—it is a godsend.

The trouble is, when does it stop being medical treatment and start being, well, fun? This is the question third-party payers have to answer for themselves and their patients before they rule on reimbursement—something they already have to do countless times a day. Hugh Hefner, the recently divorced *Playboy* billionaire, is by his own account a playboy again, and has publicly

declared his affection for Viagra. "It's great being a babe magnet in your 70s," he said in an interview in *Gear*. "And with Viagra, you can go all night."

Now, this sounds less like medicine and more like fun—although a psychiatrist could no doubt be found who would certify Hef's need to go all night. For millions of others, Viagra makes the difference between zero sexual intercourse and something like an age-appropriate frequency. But what is that? Surely, given the world's dynamic demographics, no respectable third-party payer will deny an 80-ish man the right to a few erections a month just because not long ago the average man his age had none. In the third millennium few will argue that age is a good basis for any absolute rule, and even fewer will deny that sex is a vital part of health for most people.

So our beleaguered third-party payer wants to be fair, and wants to avoid forcing doctors to stretch diagnostic categories beyond recognition. But, let's see, 365 nights a year, times \$10 a pill, times . . . how many men? You get the idea. It's easy to understand why some private payers have balked, and why Medicaid's decision to cover the drug raised almost as many eyebrows as it did penises. When a man like Hugh Hefner, identified all his life with sexual potency, is prepared to declare publicly that the drug is changing his life, we can be sure that Viagratification



will proceed apace. Male hesitancy will be minimal. Women will be cheering too, and not just from the sidelines. A woman I know who is recently menopausal says she has gotten her libido and lubrication back with estrogen therapy. But, she says, "I miss clitoral erections." She is determined to try Viagra to see if it helps.

There is every reason it should. The clitoris is embryologically almost identical to the penis, and the crucial engorgement phenomena work the same way. A recent magazine article by a woman who tried Viagra doesn't cite clitoral erections per se, but says her arousal level rose much faster, and her usual time to orgasm—self-described as normal, but long—was markedly shortened. Overall, she felt more passionate and more satisfied more quickly. True, the drug is not an aphrodisiac; even the package insert says so. But we are talking about an agent that engorges sexual organs. Do we really expect that supreme sex organ, the brain, to just observe dispassionately? Can an engorged vagina, or a hard penis or clitoris, really fail to increase desire?

No good research has proved any female effects—yet. But it is a good bet that such effects will exist. Even if they are weaker than the effects on men, it is not difficult to imagine the market for Viagra nearly doubling on gender grounds alone. And notice too the subtle shift in use. If the drug were prescribed for women, we would no longer just be talking about facilitating intercourse, something most minds would judge to be part of normality. If a man takes Viagra and a woman lubricates herself with a tube of jelly, intercourse can be achieved. So we would not just be talking about facilitating sex acts; we would be talking about augmenting pleasure. With the FDA-approved use and the extant decisions about coverage, we already ration sex; soon we may be rationing orgasms.

All the enhancement agents have potential social as well as medical downsides. Growth hormone, like steroids in sports, could generate a competitive cycle, pushing all children to the genetic limits of height. Estrogen replacement takes women out of a natural life cycle phase that has been a part of human experience since we evolved from apes. Ritalin tends to make children more similar and may abolish some aspects of what was once considered normal boyhood. Do we really want all children to sit still? As for Viagra, it has already broken up some marriages even as it has revived others. And it's a safe bet that with millions of newly confident men, massage parlors and escort services will see the drug increase cash flow as well as blood flow.

INSURING ENHANCEMENT

But this set of problems won't go away. Hand-wringing will not reduce the temptation we all feel to use any safe means to make our lives better. There will be false steps, as with the sleep aid Halcion and with the weight-loss treatment fen-phen. Both were abandoned after some years of use because of adverse side effects. There will also be abuse, as with steroids, stimulants, and any number of prescription narcotics and tranquilizers. But morphine's four-millennium history and the coca leaf's shorter but also ancient lineage should make it clear that the future will continue to provide agents that do not just treat illness but also hold out the promise of enhancing normal functioning. They will be better, safer, and more precise in their actions, more varied in their desired effects and more muted in their potentially harmful ones.

Ethical, political, and economic debates will go on as they must, but in the meanwhile we will be riding the roller coaster of polypharmacy.

The debate will not just surround agents whose primary purpose is enhancement, but also the boundaries of use for drugs that *are* mainly for illness. Cholesterol-lowering agents are a case in point. Until recently, they were given to people at risk for heart attack and stroke who could not bring their serum cholesterol levels under 200 with diet changes alone. But now it has been shown that lowering the number from 200 to 180 further reduces the number of untoward vascular events. Leave aside for the moment the question of whether

lowering cholesterol causes other medical problems. Do we expect third-party payers to foot the bill for the drop from 200 to 180, even though 200 is considered the bound of normal? Do we revise "normal" downward to 180? Or do we simply concede that normality has a fuzzy boundary, that health and illness are not clear categories but mere points on a continuum?

If we do concede that point, we will have to admit that every time we discover a drug that urges us along that continuum—away from illness and toward health—we must also face a decision about who should pay. The principle of medical insurance legitimately

demands that we be sick before we collect. Or does it? Insurance often or usually covers some vaccinations, mammograms, eye examinations, and other interventions for people who are not ill. But these procedures, it is argued, prevent graver illness and thus greater expense further down the road. This can be said of some enhancement drugs, such as estrogen, but not of others, such as growth hormone or Viagra. For these, we will have to grapple with whether something like short stature or a semisoft penis is a treatable illness.

Or perhaps we should focus on the larger policy question: When a treatment deemed both ethical and safe is shown to be capable of improving the lives of people who are not ill, can insurers help to pay without going bankrupt? And even if they don't go bankrupt, the costs will raise insurance premiums, which will lead to fewer people being insured. One possibility may be for pharmaceutical company marketing departments to be notified (by Medicare, Medicaid, and large private payers) that their pricing policy for a given drug may



determine whether they have access to more than 90 percent of their potential market—those who are basically well, but just want to enhance their lives. Such approaches already govern military contracts with large corporations and influence school textbook publishing—the profitability of which can be decided by certain state school boards. These are not ideal mechanisms, but they seem to distribute cost burdens among the various economic entities involved rather than concentrating them in one place.

Another approach would be to give physicians a certain degree of additional power to determine where a given patient or client stands on the continuum between treatment and enhancement. The patient could be required to share more of the cost as the balance shifts toward enhancement. Obviously, this would be open to abuse, but it still might turn out to be fairer than the present all-or-nothing system. Still another approach would be to let the market regulate cost. Within a few years several choices will be available in the sphere of Viagra-like agents and partially estrogenic substances. Competition, combined with corporate perception of a vast enhancement market, 10 or 100 times larger than the conventional treatment market, could drive prices down. Drug pricing patterns do not have to be the same

in the future as they have been in the past.

But the enhancement issue extends beyond drugs. Who pays for psychotherapy, under what conditions, and for how long? Is infertility an illness? Most plans don't pay for treatment, whether medical or surgical, and these treatments are very expensive. Should a young infertile woman, or one with a specific clinical diagnosis, have different opportunities for coverage than a woman in her 40s who is otherwise healthy and has electively postponed childbearing? Breast reconstruction after mastectomy or correction of a harelip may be medical treatments, but breast augmentation and face-lifts are clearly enhancements. Or are they? Medical ethicists and policymakers will have a great many judgments to make, and the advancing edge of science will only make those judgments harder.

MM

Melvin J. Konner is Samuel Candler Dobbs Professor of Anthropology and associate professor of psychiatry and neurology at Emory University.

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Illustrations by William Bramhall.

Celebrating 30 years of mending broken hearts

For 30 years, Children's HeartLink has worked globally to save the lives of children suffering from heart disease.

Working in partnership with developing cardiovascular programs around the world, Children's HeartLink is helping to make cardiac care a reality for more children.

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ANNOUNCEMENTS



MMA Annual Meeting Information on the MMA Web Site

The 1999 MMA Annual Meeting is September 26, 27, and 28, at Madden's Resort in Brainerd. To find the schedule of events, how to register, a list of delegates and resolutions, and other information about the meeting, visit the MMA Web site at <http://www.mnmed.org/about/am99.html>

Plan for Medicare Compliance Seminar

A Medicare Compliance seminar, sponsored by the Minnesota Medical Association and the Midwest Medical Insurance Company, will be held 8:00 a.m.-12:30 p.m., September 22, at the Earle Brown Conference Center in Brooklyn Center. Physicians and staff who have responsibility for clinic compliance efforts should attend. For more information, call Vicki Westling, 612/378-1875 or 800/DIAL MMA (800/342-5662).

HOD Will Consider Strategic Plan Recommendations

The Minnesota Medical Association Committee on Strategic Planning has been working for more than a year to find ways to maintain and increase MMA membership in a changing health care environment.

The committee, chaired by Judith Shank, M.D., MMA president, presented its findings July 17 at the MMA Board of Trustees (BOT) meeting in St. Paul, and the committee's proposals will be considered by the MMA House of Delegates (HOD) at the MMA Annual Meeting September 26-28 in Brainerd. The committee made four proposals.

Expand HOD Representation

The committee recommended that the MMA expand the size of the HOD to provide additional ways physician mem-

bers can be represented. Under the proposal, MMA members would continue to be represented by their component medical societies, but also would have the option of choosing a second method of representation, which could be their specialty society, hospital medical staff, clinic, health system, or other qualifying organization.

If the HOD accepts this proposal, changes to bylaws must be adopted and a program developed to implement the changes.

Keep Unified Membership

The committee recommended that the MMA not change its two-way state/component society unification method of membership. Under this method, to

COMMITTEE cont. on page 35

Senate Patients' Rights Legislation Disappointing

The U.S. Senate approved the Republicans' patients' bill of rights legislation after a highly partisan four-day debate in July. Action on patients' rights now moves to the House of Representatives.

The American Medical Association and the Minnesota Medical Association urged senators to vote for the provisions in the Democrats' bill that would have guaranteed more patient protections and held health plans and insurance companies accountable for actions that affected patients. But the GOP version of the bill prevailed, 53-

47, with only two Republicans breaking rank to vote with the Democrats.

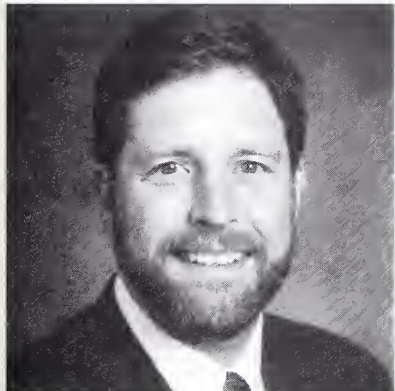
During the Senate debate, the MMA wrote to Minnesota Sens. Rod Grams and Paul Wellstone, asking them to support legislation that would include strong provisions on medical necessity, external appeals, and health plan accountability. The MMA sent an alert to the MMA legislative network, generating phone calls that urged Grams to support stronger protections than those in the Republican bill. Grams voted for

SENATE cont. on page 35

VIEWPOINT

Paul C. Matson, M.D.

Chair, MMA Board of Trustees



Should Patients Look for the Union Label?

The American Medical Association's controversial vote to form unions is just one symptom of physician frustration with restrictions on patient care. During heated debate at the AMA Annual Meeting, delegates complained about restrictive formularies and referrals, limits on hospital stays, and decisions about medical necessity. Physician dissatisfaction is strongest in states where there are for-profit health plans and no patient protection legislation such as anti-gag laws. Clearly, many physicians want organized medicine to level the playing field and help them negotiate regarding employment contracts and patient care issues. An AMA poll last year found that 68 percent of physicians surveyed support unions.

Not all delegates were convinced that forming unions is the answer. Some worried about the impact unions will have on the doctor-patient relationship and the medical profession. To allay these concerns, the AMA reaffirmed its opposition to physician strikes. As recently as 1998, the AMA adopted guidelines proposed by its Council on Ethical and Judicial Affairs, mak-

ing it clear that a strike or any collective action that endangers patient care would never be acceptable. The CEJA report gave the example of a "concerted suspension of paperwork" as an acceptable alternative.

The AMA Board of Trustees advised against unionization in part because it is not an option for self-employed physicians. Because of antitrust laws, only 17 percent of physicians in the nation could join local unions set up by the AMA.

Some physicians have argued that by working for a health plan, they are "de facto" employees and should be allowed to unionize. In May, however, the National Labor Relations Board ruled that a group of self-employed physicians in New Jersey who participated in an HMO were not eligible for union representation because they were "independent contractors," not employees.

Our Minnesota delegation did not vote as a block on whether the AMA should form unions because the MMA has not yet taken a position on this issue. We do, however, strongly support other ways to gain more leverage, such as H.R. 1304, proposed by Rep. Tom Campbell, R-Calif. This bill would allow self-

employed physicians to negotiate collectively with health plans regarding contract terms that affect patient care. This would help physicians who are given "take it or leave it" contracts that cover a large number of their patients. The bill would not allow price fixing or strikes, but would allow contract negotiations over issues such as the definition of "medically necessary" and requirements that physicians provide the least costly alternative.

The MMA also supports a strong federal patient protection act. As *News & Views* goes to press, Congress is considering several patients' bill of rights proposals, some that fall short of providing real protection for patients. The MMA has joined the AMA in pushing for provisions that would give physicians the final say about medical necessity, give patients the right to appeal a health plan's medical decision with an independent external reviewer, and hold health plans accountable for negligent medical decisions.

We may not all agree on whether physicians should form unions, but I think we do agree on the need for more clout as we negotiate on patient care issues.

COMMITTEE *cont. from page 33*

be a member of either the MMA or a component society, a physician must be a member of both. Membership in the American Medical Association has always been optional.

The committee found that MMA membership is high compared with membership in other state medical associations requiring two-way state/component society unification and concluded that the MMA wouldn't gain any benefit significant enough to justify changing its membership requirement. The committee also recommended that the MMA define the relative roles of the state association and the component societies so that members see a seamless organization that fully represents them.

Judith Shank, M.D., MMA president, who chaired the committee, said, "We should stay open to discussion and new ideas, but we just didn't find any indication that there were enough benefits to justify the risks of changing our present membership model."

Change Membership Categories, Dues Structures

The committee recommended changing some membership categories and dues structures to allow the MMA more flexibility. The committee found that because of Minnesota's mix of urban and rural health care centers, physicians' compensation and benefit structures vary.

The committee proposed that the HOD authorize the BOT to implement limited "pilot projects" to assess the viability and desirability of additional membership categories and dues structures.

Expand Nominating Committee

The committee recommended that the MMA nominating committee be expanded to include the last three MMA past presidents and the current chair of the MMA delegation to the AMA. These additions to the committee would allow for greater depth of expertise and knowledge when identifying candidates for MMA officers. ■

SENATE *cont. from page 33*

the GOP bill and Wellstone supported the Democrats' stronger protections.

The 253-page Senate patients' protection bill that passed was put together so hastily that D. Ted Lewers, M.D., chair of the AMA Board of Trustees, said, "It's going to take the House of Representatives to repair the damage and put 'patients' back into the patients' bill of rights."

The impact of federal legislation may not be as great in Minnesota where the MMA has supported, and the Legislature has enacted, many of the provisions in the Democrats' patients' protection legislation, such as permitting direct access to an obstetrician/gynecologist and requiring the "prudent layperson" definition of an emergency. ■

Sen. Wiger Takes Action on BMP Fee Increase

Grassroots efforts by physicians are effective in generating political responses. A physician, concerned about the proposed Minnesota Board of Medical Practice (BMP) physician license fee increase, contacted Sen. Charles W. Wiger (DFL-No. St. Paul), who took action. He called the MMA for further information, then sent an inquiry to Robert Leach, executive director of the BMP, asking for more justification for the proposed increase.

The BMP is proposing to increase the annual physician license fee from the current fee of \$168 to \$192. The BMP said that the fee increase is necessary because of a 1996 adjustment of salaries and operating expenses

as well as the costs associated with a proposed computer system upgrade.

In his letter to Leach, Wiger said, "I am inclined to believe, along with my constituent, that this proposed fee increase is unjustifiable."

The MMA urged members to attend a July informational meeting concerning the fee increase. The BMP is required to hold a hearing before an administrative law judge on the proposed rate increase. The hearing had not been scheduled when *News & Views* went to press.

For information on the proposed increase, call Christina Rich, MMA associate counsel, 612/378-1875 or 800/DIAL MMA (800/342-5662). ■

MMA ANNUAL MEETING

Tentative Schedule of Events

September 26-28, 1999

Madden's Resort, Brainerd, MN

SUNDAY, SEPTEMBER 26

9 a.m. – 6 p.m.

General Registration

10 a.m. – 1 p.m.

Board of Trustees Meeting

12:30 p.m. – 2 p.m.

MEDPAC Annual Meeting

2 p.m. – 5 p.m.

Program on Education for
Physicians on End-of-Life Care
(EPEC)

6 p.m. – 8 p.m.

Welcome Reception

8:30 p.m. – 10 p.m.

Young Physician Section
Reception
Women Physicians Reception

MONDAY, SEPTEMBER 27

6 a.m. – 8 a.m.

Breakfast Buffet
(Respective Resorts)

8 a.m. – 10 a.m.

Continental Breakfast
(Respective Resorts)

6:30 a.m. – 5 p.m.

General Registration

7 a.m. – 8:45 a.m.

Component Society Caucuses:
Ramsey
Hennepin
Greater Minnesota

9 a.m. – 10:30 a.m.

House of Delegates (Session I)

10:30 a.m. – 11:15 a.m.

AMA Open Forum

11:15 a.m. – 12:45 p.m.

Awards Lunch

1 p.m. – 3:30 p.m.

Reference Committee
Open Hearings

3:30 p.m.

Open Time
(Golf, Tennis, etc.,
available)

3:30 p.m. – Until Completion

Reference Committee
Executive Session

4 p.m. – 5 p.m.

Organized Medical Staff
Section

4 p.m. – 5 p.m.

Medical Student Section

5 p.m. – 6 p.m.

AMA Delegation Meeting

6:30 p.m. – 7 p.m.

Pre-Inaugural Reception

7 p.m. – 9 p.m.

President's Inaugural Dinner
& Festivities

9 p.m.

Afterglow Reception
Entertainment: 16-piece
Randy Lee Jazz Orchestra

TUESDAY, SEPTEMBER 28

7 a.m. – 9 a.m.

Breakfast Buffet
(Respective Resorts)

9 a.m. – 10 a.m.

Continental Breakfast
(Respective Resorts)

7 a.m. – 8 a.m.

Resident Physician Section

7 a.m. – 8:30 a.m.

Board of Trustees
Breakfast Meeting

8:30 a.m. – 12 noon

General Registration

8:30 a.m. – 10:15 a.m.

Component Society Caucuses:
Ramsey & Hennepin
Greater Minnesota

10:30 a.m. – 3 p.m.
(includes lunch)

House of Delegates
(Session II)

12 noon

Spouse Lunch

3 p.m. – 3:30 p.m.

Board of Trustees
Organizational Meeting

NEWS DIGEST

*People and places
making medical news*



People & Places

Doris C. Brooker, M.D., of Eden Prairie, Minnesota, was elected to the board of directors of the **Federation of State Medical Boards of the United States, Inc.** Brooker, a graduate of the School of Medicine at Marquette University, is an associate professor and senior physician at the **University of Minnesota Medical School** specializing in obstetrics and gynecology.

Howard Stang, M.D., a pediatrician at the **HealthPartners White Bear Lake Clinic**, received the 1999 Practitioner Research Award from the **American Academy of Pediatrics**. The award honors a pediatrician who has conducted research contributing to the overall body of medical knowledge and who has spent at least 80 percent of his or her practice career seeing patients in an office-based, nonacademic practice. Stang is also a clinical professor of pediatrics at the **University of Minnesota**.

Minnesota Specialty Physicians, Inc., appointed David W. Allen Jr. as president and CEO. Allen, who has more than 20 years of experience as a health care executive, most recently served as a principal in the Minneapolis-based health care consulting group of **McGladrey & Pullen, LLP**. Allen holds an economics degree from the **Wharton School** at the **University of Pennsylvania**. **Minnesota Specialty Physi-**

cians comprises 38 independent medical surgical practices.

Lakeview Hospital, in Stillwater, Minnesota, named **Sunil Patel, M.D.**, and **R. Peter Ulland, M.D.**, as recipients of its **Physician Recognition Award**. The award is based on consistent contributions to the hospital's medical staff and the community.

Bruce G. Wolff, M.D., was elected to the Executive Council of the **American Society of Colon and Rectal Surgeons** for 1999–2000. Wolff is professor of surgery, **Mayo Medical School**, Rochester, Minnesota, as well as a consultant in colon and rectal surgery at the **Mayo Clinic**.

Minnesota Commissioner of Health **Jan Malcolm** appointed **Dick Wexler**, **Aggie Leitheiser**, and **Gayle Hallin** as assistant commissioners of the **Minnesota Department of Health**. Wexler, a longtime employee in the state Attorney General's Office, will work for the Access and Quality Improvement Bureau. Leitheiser, division director for Disease Prevention and Control for the past four years, will work in the Health Protection Bureau. Hallin, director of **Bloomington Public Health** since 1986, will become the new assistant commissioner for the Family and Community Health Bureau.

Malcolm also appointed **Mary Sheehan**, a 14-year employee of the Health Department, as coordinator

of the newly created **Tobacco and Local Public Health Endowment**, a \$590 million fund that will be used for tobacco prevention programs and other activities aimed at reducing high-risk behaviors among young people.

Princeton Reimbursement Group (PRG), Minneapolis, named **Del Ohrt, M.D., MBA**, as medical technology adviser, specializing in technology evaluation and coverage. PRG offers medical products companies assessment services that address reimbursement issues throughout a product's life cycle.

Duane Hasegawa, M.D., was named chief of professional services for the **HealthPartners Maplewood Clinic**. Hasegawa has practiced at the clinic, which provides medical and dental services, since 1990.

Park Nicollet Clinic Health-System Minnesota opened a new clinic in Maple Grove, Minnesota, in July. The new, 16,000-square-foot facility offers internal medicine, family practice, pediatrics/internal medicine, urgent care, ophthalmology, contact lens, and physical therapy services.

CareNorth Health System in Duluth plans to expand its pediatric health care services through a cooperative effort between **CareNorth** and **Children's Hospitals and Clinics**. Pediatric surgeon **Robert**



Telander, M.D., and pediatric hematologist/oncologist Chris Moertel, M.D., will begin offering the new pediatric subspecialty services in September at the medical offices of Kundel & Streitz, P.A., Northland Medical Center, Duluth.

Cheryl Perry, M.D., professor in the School of Public Health at the University of Minnesota, was appointed to the Minnesota Health Improvement Partnership (MHIP) and the Tobacco Endowment Advisors Group of the Minnesota Department of Health. The MHIP will focus on several initiatives already proposed as part of the "Healthy Minnesotans Public Health Improve-

ment Goals" that the state and local public health agencies developed over the past two years.

HealthEast Care System has begun construction on a new assisted-living complex in South St. Paul. The four-story building, to be called River Heights Senior Apartments, will have 60 apartments, including some units designed for residents with Alzheimer's disease or other memory loss disorders. Partners in the project, which is expected to be completed by May 1, 2000, are HealthEast, the U.S. Governmental and Educational Assistance Corporation, and the U.S. Department of Housing and Urban Development.

HealthSystem Minnesota received the 1999 American Medical Group Association's Acclaim Award, which recognizes outstanding systematic improvement in the quality of patient care.

Regions Hospital in St. Paul has begun construction on expanded surgical facilities, new women's, heart, and cancer centers, and a new main entrance. The \$62 million project, to be completed by 2002, will also include new gastroenterology services, expanded hospital ICUs, additional clinic exam rooms, and new waiting and community areas. ■



Socioeconomics

Minnesota HMOs Made Money from Medicaid

Despite an overall money-losing year in 1998, Minnesota HMOs showed an increase in earnings from Medicaid, a state-sponsored health care program, according to a report by Minneapolis consultant Allan Baumgarten. "HMOs here are making a lot more on Medicaid than they are in other states," Baumgarten said in a *St. Paul Pioneer Press* article. These HMOs did not make money on any other government-related programs last year, however. The *Pioneer Press* reported that overall, HMOs in this state lost \$20.9 million on MinnesotaCare, \$9.9 million on general assistance, and \$13 million

on Medicare programs.

The industry's earnings from government health care programs rose between 1997 and 1998 but are still down compared with 1996 earnings.

Seniors Pay More for Drugs

A federal price survey of prescription drugs showed that seniors in the St. Paul area who pay out of pocket for prescription drugs pay more than twice as much as major insurance companies, HMOs, and the federal government, organizations that can make bulk purchases. The study, conducted at the request of U.S. Rep. Bruce Vento, focused on 10 drugstores in the St. Paul area. On average, senior citizens paid 114 percent more for the five top-selling drugs for their age group than the institutions paid. The *St. Paul Pioneer Press* reported that seniors were charged an average of \$104.76 for 60 Zocor tablets, for example, while preferred customers

paid only \$34.80.

The pharmaceutical industry said that this and other surveys do not factor in markups by wholesalers and retailers that raise retail prices and that the surveys draw conclusions based on a small, unrepresentative sample of drugs. According to the Vento report, the pharmacies surveyed in St. Paul marked up prescription drugs 20 percent but still sold them to seniors at less than the manufacturers' suggested price.

Anoka County to Lose Medicare HMO

Medica Health Plans announced that it will drop its Medicare HMO from Anoka County, Minnesota, at the end of this year because of the low rate of reimbursement from the federal government. The decision will affect about 3,350 people. According to a Minneapolis *Star Tribune* article, Medica cited an inability to forge an agreement with Columbia Park Medical Group, the main care provider for the county's Medica HMO enrollees. ■



Research & Innovations

Researchers Find Strain of *E. Coli* That May Cause Miscarriages

Pregnant women's urine should be tested for *E. coli* 0:157, a strain of bacteria that may cause miscarriages or premature birth, says Anil Kaul, M.D., director of Women's Health Research at the Minneapolis Medical Research Foundation. Kaul and his researchers isolated *E. coli* 0:157 in the urine of a woman who miscarried at 22 weeks. The researchers found that while the *E. coli* bacteria in her urine were unable to make the diarrhea-causing toxins that the strain normally produces in the digestive tract, it did have virulent properties that have been implicated in preterm birth.

Kaul said screening for *E. coli* 0:157 would add \$10 to \$15 to the routine urine tests for pregnant women.

Occupational Hazards Raise Prostate Cancer Risk for Farmers

Mayo Clinic researchers in Rochester, Minnesota, have found that farmers probably face a greater risk of developing prostate cancer than nonfarmers, less because of lifestyle factors than because of occupational hazards. "Further studies investigating specific agricultural practices and exposures are needed to determine why," said James Cerhan, M.D., in an article in the *St. Paul Pioneer Press*. Cerhan, the Mayo Clinic epidemiologist who led the

project, and his colleagues followed 1,177 Iowa males, aged 40 years through 86 years, from 1986 through 1995.

Farmers 70 years and older were found to have two times the risk of prostate cancer shown by nonfarmers and a higher likelihood of getting an aggressive form of the cancer. "We thought that diet and lifestyle would explain a fair amount of this, but it didn't," said Cerhan. Pesticides, herbicides, fertilizers, and animal viruses are among numerous potential factors that cannot be ruled out.

FluMist Vaccine Protects against Flu

Research subjects using the nasal spray flu vaccine FluMist had 23.6 percent fewer cases of flu-related illnesses compared with a placebo group, according to a study led by Kristin Nichol, M.D., Minneapolis Veterans Medical Center, that was published in the July 14 *Journal of the American Medical Association*. The study involved more than 4,500 adults who were followed during the 1997-98 flu season, including about 250 Twin Cities residents. Besides getting fewer infections, those using the spray vaccine had flu-related illnesses of shorter duration, fewer doctor's office visits, and less need for prescription antibiotics.

In an editorial in the same issue of *JAMA*, Gregory Poland, M.D., a specialist in infectious diseases at the Mayo Clinic in Rochester, Minnesota, said the nasal spray vaccine and the traditional needle-syringe vaccine seem to be at least equally effective in healthy individuals.

The FDA has not yet approved FluMist, which is manufactured by Aviron, Mountain View, California. According to the Minneapolis *Star Tribune*, the company hopes

the spray vaccine will be on the market for the 2000-01 flu season. The vaccine would cost about \$10 to \$15.

Minneapolis Kids Show Weight Gain, Higher Blood Pressure

Too much time spent watching television and playing video games is to blame for increases in weight and blood pressure in schoolchildren over the past 10 years, according to a University of Minnesota study published in the June 1999 *Journal of Pediatrics*. Russell Luepker, M.D., in the university's School of Public Health, led the study, which compared the blood pressure, height, and weight of 10,241 Minneapolis children measured in 1996 with the same data from 8,222 children measured a decade earlier. The children, who ranged in age from 10 years to 14 years, represented five different ethnic groups: white, African-American, Native American, Hispanic, and Southeast Asian.

All ethnic groups and both genders showed higher systolic blood pressure and weight and body mass index in 1996. The children's heights also tended to increase but correlated with the weight increases. Diastolic blood pressure was inexplicably lower than it was 10 years earlier. ■



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Rates, Trends & Data



Mayo Ranked Second in Annual Survey

The Mayo Clinic, Rochester, Minnesota, came in second to Johns Hopkins University in *The U.S. News & World Report* 10th annual survey of hospitals. "We would be happy to be number one, but we're also not disappointed to be number two," said Chris Gade, a spokesperson for the clinic, in a Minneapolis *Star Tribune* article. Hospitals

are evaluated according to 16 medical specialties, based on national reputation and factors such as mortality rates and nursing staff.

Mayo Clinic ranked first in neurology, orthopedics, digestive tract, hormonal disorders, and rheumatology. In the survey's inaugural year in 1989, Mayo ranked first overall but has been in second place on the list ever since.

U.S. Youths Report Better Health, Well-Being

A comprehensive survey of American children shows that in certain important respects, they're faring better these days. The third annual report, "America's Children: Key

National Indicators of Well-Being," issued by the Federal Interagency Forum on Child and Family Statistics, shows a decline in infant, childhood, and adolescent mortality, and in teen smoking, crime, and birth rates.

The report noted other positive trends, such as higher rates of preschool enrollment, especially among black, non-Hispanic children. Not all areas showed improvement, however. The percentage of children living in poverty (about 19 percent) has stayed about the same since 1980, for example. Nor is the news about children's diets good. The survey indicates that most children have poor eating habits, which only grow worse with age, as the children eat less fruit and milk.

Alternatives to HMOs Increase in Popularity

More Minnesota employers appear to be choosing PPOs and other managed care-type programs over HMOs, according to Allan Baumgarten, an independent industry consultant. As reported in the Minneapolis *Star Tribune*, Baumgarten's annual study of the state's managed care industry showed a 6 percent drop last year—to 956,149—in the number of Minnesotans in HMO plans that are marketed to employers. Premiums for HMOs are usually more expensive and have been rising as HMOs strive to offset their higher costs and financial losses. According to the *Star Tribune*, the HMO industry had losses of \$10 million in 1997 and \$9.6 million in 1998, but most HMOs have recovered them through investments. ■

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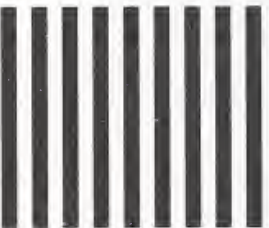
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Innocent Victims

The Connection between Animal Abuse and Violence toward Humans

Cruelty to animals is not an isolated problem—people who abuse animals are much more likely to harm humans.

Michael Robin, M.S.W., M.P.H.

Editor's Note: In this month's Public Health Report, we focus on animal abuse. It won't surprise many of you to read about the suggested relationship between human abuse and animal abuse, which have long been connected. The first child protection cases were filed under laws protecting animals from cruelty. Perhaps our efforts to deal with violence toward animals may guide us in the difficult but crucial struggle to control human violence in our society. Consider the likely outrage if the Terminator had eliminated as many whales or eagles as humans. Remember when the cowboys shot the horses and not the other cowboys? Perhaps the laws that prohibit movies from displaying many types of violence against animals could be used as standards to determine the levels and types of human violence that can be shown. Read on to find out about the emerging recognition that cruelty to animals is linked to interpersonal violence.

—Barbara P. Yawn, M.D. M.Sc.
Series Editor

In the fall of 1997, two 18-year-olds from Iowa captured the nation's attention when they were arrested for breaking into an animal shelter and beating 16 cats to death with baseball bats. Seven other cats were injured but survived. The youths were ultimately acquitted of felony charges when the jury determined that the cats were not worth the \$500 necessary in Iowa law for a felony conviction. Many people were distraught that the case was determined primarily on the basis of the animals' economic value.

Unfortunately, the acts of these youths are not isolated or without wider significance. Although no one knows precisely how many animals are abused and neglected each year, the Humane Society of the United States estimates that the number is in the hundreds of thousands. Most people accept that animals, as sentient beings—creatures that experience pain—deserve protection from gratuitous suffering. As Robert ten Bensel, M.D., a retired University of Minnesota pediatrician, has written, "Gratuitous cruelty is unjust, terrorizing in nature, and irrational because it is without limits, and

without cause. It is never justifiable in the human community."¹

Concern for the maltreatment of animals dates back to antiquity, but until the 17th and 18th centuries, there was relatively little awareness that animals needed protection from cruelty. A new sensibility about the issue developed as towns grew and animals entered the home as pets, which created the foundation for the view that at least some animals were worthy of moral consideration. But public sentiment was not reinforced by law until the 19th century, when animal protection laws were promulgated.

The awareness that cruelty to animals is linked to interpersonal violence also dates back to antiquity. One of the earliest writers to theorize on the human consequences of cruelty to animals was the Roman poet Ovid (43 B.C.–A.D. 17), who wrote, "Twas slaughter of wild beast methinks, that makes man thirst with blood to stain his cool blade." This sentiment was later articulated by Saint Thomas Aquinas (1225–1274), who wrote, "Holy scriptures seem to forbid us to be cruel to brute animals ... through being cruel to an animal one becomes cruel to human beings or because injury to an animal leads to the temporal hurt of man." Likewise, the philosopher Michel Montaigne (1533–1592) wrote, "Men of bloodthirsty nature where animals are concerned display a natural propensity to cruelty."

Children and Animals

Cruelty to animals should not be dismissed as a "childish prank." Although many children and youth taunt or tease animals, it is not normal for children to take delight in making animals suffer. Most young people, even those who have been abused, are kind and nurturing to animals. Of those who are not, many act more from ignorance than maliciousness, and they are responsive to redirection and education.²

Children and youth who beat, torture, or mutilate animals are children in crisis. Persistent and extreme cruelty to animals in childhood suggests serious psychopathology. Children who are cruel and sadistic to ani-

imals are at great risk of becoming increasingly violent as they get older. The DSM-IV cites physical cruelty to animals as one of the 13 diagnostic criteria for conduct disorder. The essential feature of this disorder is a persistent pattern of conduct in which the individual ignores other people's basic rights and violates age-appropriate societal norms. Persons with this diagnosis tend to have little empathy and concern for the feelings, wishes, and well-being of others; they fail to conform to social norms, may display bullying, threatening, or intimidating behavior; and they lack appropriate feelings of guilt and remorse. Violence, aggression, and destructive behavior are prominent among youth with this disorder.

Kip Kinkel, the Oregon youth who in May 1998 killed his parents and opened fire on his classmates, killing two and wounding 22, liked to put firecrackers in cats' mouths and watch them explode. Friends said he often boasted about killing his cat and blowing up squirrels and a cow. Kinkel collected guns and frequently joked about killing people, leading his classmates to vote him "most likely to start WWII."

Luke Woodman of Pearl, Mississippi, killed his mother and two of his classmates with a rifle in October 1997. When asked to explain his actions, he responded, "The world has wronged me." Woodman reported being teased by classmates who called him a nerd and knocked his books out of his hands. He said his mother "always told me I was fat and stupid and ugly." Woodman told investigators, "I am not insane. I am angry. I killed because people like me are mistreated every day. I did this to show society, push us and we will push back." Luke struggled with a profound sense of loneliness, shame, and rage. After his arrest, investigators discovered that Woodman liked to torture animals.

Over the last 25 years, many studies have shown that a high percentage of violent offenders have a history of cruelty toward animals in childhood and adolescence. A study by the FBI in the late 1970s of 36 convicted multiple murderers found that more than one-third said that as children they had killed and tortured animals; nearly one-half said they did so as adolescents. David Berkowitz, the infamous "Son of Sam" murderer in New York, and Kenneth Bianchi, the "Hillside Strangler" in Los Angeles, were said to have hated dogs and committed various cruelties toward animals in their youth. The "Boston Strangler," Albert DeSalvo, trapped dogs and cats in orange crates and then shot arrows into the crates. Ted Bundy, who was executed in 1989 for one of as many as 50 murders, claimed that as a child, he frequently tortured animals in the company of his grandfather.

Researchers Stephen Kellert and Alan Felthous found that cruelty to animals during childhood was common among adult men incarcerated for serious and recurrent violence. In general, the highest frequency of childhood cruelty to animals was found among the most violent prisoners, who also came from the most violent and chaotic families.³

Domestic Abuse

Abuse of animals is also linked to abuse of women. Maiming or killing a woman's pet is more than an act of aggression against the animal. Abusers use the threat or actual killing of an animal as a way to establish or maintain control. It is a symbolic communication that says, in effect, "This could be you if you defy me." A woman whose partner has killed her pet is at great risk of being harmed. This is a potentially life-threatening situation and calls for immediate attention. Many violent perpetrators also use the threat of harming or giving away the pet to keep the partner from reporting the abuse or leaving.

Frank Ascione, a researcher from Utah State University, surveyed 38 women seeking shelter from abusive partners about their experiences with pets. Seventy-four percent of the women reported pet ownership in the 12 months prior to entering the shelter. Of the women with pets, 71 percent reported that their male partner had threatened to hurt or kill or had actually hurt or killed one or more of their pets. Ascione stated that "nearly one in four reported that concern for their pets had kept them from coming to the shelter earlier." The women's concerns included fear for the animals' safety, fear of having to relinquish the pet, and difficulty finding alternative housing or substitute caretakers for pets.⁴

Many shelters for battered women now include in their intake process questions about the care of animals. Ascione developed a pet maltreatment assessment that includes the questions: Do you have a pet animal? Have you had a pet animal or animals in the last 12 months? Has your partner ever threatened to hurt or kill one of your pets? Did concern over your pet's welfare keep you from coming to the shelter sooner than now? Women with children are asked: Have any of your children ever hurt or killed one of your pets? Although information about animal cruelty has not been solicited routinely from victims of domestic violence, Ascione says battered women usually appreciate being asked about their pets.

What Motivates Animal Cruelty?

While most people are disinclined to mistreat animals, for highly disturbed persons, an animal represents a being over which they can exert power and control. After all, no matter how powerless and insignificant one feels, it is still possible to kick the dog. Acts of animal cruelty are most often committed by lonely, isolated people with long-standing frustrations and resentments about being denied the acceptance, appreciation, and recognition they feel they deserve.

The specific motives for cruelty to animals vary. Some people harm an animal to instill fear in or exact revenge from someone who cares for that animal. In some cases, abusers have threatened to harm a child's pet if the child tells anyone about being violated. Others brutalize animals to control an animal's behavior, because of prejudice against a species or breed, or for shock, amusement, or sadism. Although most people who maltreat animals are male adolescents or young

adult males, children as young as 4 years have been known to abuse animals. Claire Renzetti, a domestic violence researcher, found that animal cruelty does sometimes cross gender lines. In her study of battering in lesbian relationships, she noted that 38 percent of abused women with pets reported maltreatment of pets by their partners.⁵

What Can Be Done?

In the routine care of patients, physicians and other health care providers should ask patients about their pets. Pet ownership is widespread and has significant health benefits. Many people think of their animals as members of their family. Patients are often eager to talk about their pets, and a conversation about animals often strengthens the doctor-patient relationship. If the patient expresses concerns about caring for an animal, the health care provider can use this opportunity to talk about humane animal care. Health care providers should report cases of severe maltreatment.

In Minnesota, local humane societies are responsible for investigating reports of animal abuse. Maltreatment of animals in Minnesota is a misdemeanor. Maltreatment applies to all animal species and is defined as knowingly depriving an animal of food, water, shelter, socialization, or veterinary care or maliciously torturing, maiming, mutilating, or killing an animal. If you see or suspect that an animal is being mistreated, notify your local humane agency. In counties without a humane society, contact the local sheriff. We also need to support

legislative efforts that strengthen animal protection. In Minnesota, as in most other states, animal abuse investigations are hampered by vastly inadequate resources.

Animal cruelty is not a simple, isolated problem unrelated to other forms of violence. People who abuse animals are much more likely to be abusive to children and to their partners. Similarly, people who are violent to other humans are also more likely to abuse animals. One study of 57 families in which child abuse and neglect had been substantiated showed that animal abuse also occurred in 88 percent of the families. Two-thirds of the pets that were abused were abused by fathers; one-third by children.⁶ Currently, there is very little cooperation and communication between animal welfare and social service agencies. These agencies need to explore areas of mutual concern, particularly when dealing with a situation involving potentially serious harm or loss of life. When investigating child abuse allegations, social workers should contact the local animal welfare agency if there is evidence of animal maltreatment.

In some communities, advocates for battered women and animal welfare have worked together to establish shelters for the companion animals of abused women. When women enter these programs, their pets receive food, refuge, and veterinary care in animal shelters or foster homes. These programs aim to prevent harm to animals and to help women who might avoid seeking protection or go home prematurely because of concern about their pet.

We are still in the early stages of making care and reverence for all creatures, great and small, a dominant value in our culture. As Albert Schweitzer said, "Man can no longer live for himself alone. We must realize that all life is valuable and that we are united to all life. From this knowledge comes our spiritual relationship to the universe."

MM

Acknowledgment

The author would like to acknowledge the contribution of Robert ten Bensel, M.D., who helped gather data and formulate the ideas in this paper. He has done much to advance our understanding of violence toward people and animals.

Michael Robin is a behavioral scientist at the United Family Medicine Residency Program in St. Paul.

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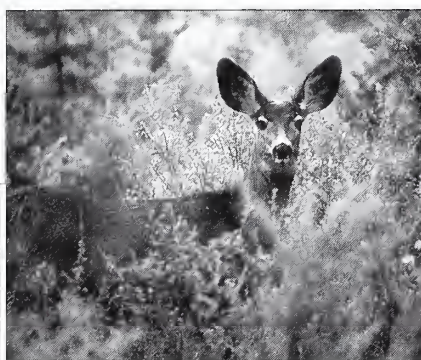
about the issues of cosmetic pharmaceuticals [who read Elliott's work] can't help but think differently about what you do when you prescribe this stuff."

Elliott shares ideas with his brother Hal, a psychiatrist at Wake Forest University in Winston-Salem, North Carolina, with whom he discusses Prozac, depression, and alienation. Is the feeling of alienation described by Walker Percy in novels like "The Moviegoer" really an illness? Or is it, as Percy attests, a sign that the person is "on to" something? "We go back and forth," Elliott says. "Sometimes my brother almost convinces me that the drug makes you more thoughtful about your condition, that it doesn't just 'make it go away.'"

He philosophizes with his son, Crawford, as well, although he lets the 4-year-old do most of the talking. "He likes to talk about philosophy," Elliott says, twinkling with pride. (Daughter Martha, 2, is surely the next family philosopher.) "I try to encourage it. We talk on the way to preschool. He asks, 'Where did God come from?'"

And how does Dad respond to such a weighty question? Elliott grins. "I turn the question back to him," he says. "That's what philosophers do." MM

Anne Welsbacher is a freelance writer and playwright living in Minneapolis.



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Malpractice Claims and the Quest for Perfection

Physicians who perform elective cosmetic surgery can minimize their risk of malpractice claims—typically brought by patients unhappy with the results of their surgery—by improving physician-patient relationships, communication, and education.

By Debra McBride, R.N., J.D.

The allegations in medical malpractice lawsuits against plastic surgeons have a common theme of patient dissatisfaction: patient unhappy with results of breast implants, patient unhappy with results of eyelid surgery, patient dissatisfied with rhinoplasty, patient unhappy with scarring after implants, patient dissatisfied with face lift results.

Patients seeking elective cosmetic surgery are already unhappy with their appearance. Unrealistic expectations or psychological problems may also lead to unhappiness with their results, as well as their surgeon. Some plastic surgery patients may have psychological issues coexisting with their desire to change their appearance.¹ When surgeons fail to recognize these issues, they may become trapped in a situation that leads to litigation.

Case example: A 30-year-old man sought revision of a small bump on his nose. Although the surgeon could not see an obvious flaw, the patient insisted that he was a model and the flaw was ruining his career. After the rhinoplasty, the patient was extremely dissatisfied. He insisted that the surgeon revise the area and make it smoother. Against his better judgment, the surgeon operated again. The patient continued to be unhappy and sought the opinions of three other surgeons. He called and complained to the first surgeon as often as four times a week. He finally came in with "before and after" photographs of

himself and demanded that the surgeon acknowledge that the patient now had a "deformity" of his nose. The patient brought a malpractice suit that was dismissed for lack of expert witness support.

The medical-legal literature on patient satisfaction and malpractice suits clearly demonstrates that unhappy patients are more likely to sue their physicians.² Efforts to help physicians manage risk and avoid malpractice claims typically focus on improving physician-patient relationships, communication, and education. Although not every adverse outcome is complicated by a poor physician-patient relationship, the lack of timely, complete documentation and inadequate informed consent can also cause problems in defending malpractice claims.

Malpractice Claims Data

The Physician Insurers Association of America (PIAA) maintains the world's largest database on closed malpractice claims data, having registered more than 146,000 closed malpractice claims since 1985. Through 1998, more than 5,700 claims against plastic surgeons were reported, for a total of \$142.6 million in indemnity payments. Payment was made to the patient in 1,648 (29%) of the claims. Between 1996 and 1998, the national average payment to plaintiffs in plastic surgery claims was \$143,302. The largest payment reported was \$1.65 million.

PIAA data show that the most

common allegation patients make against plastic surgeons is "improper performance," or failure to meet the standard of care. Forty-seven percent of all closed claims and 67 percent of all paid claims against plastic surgeons included this allegation. Among patients alleging improper performance, the most common conditions were desire for plastic surgery, dyschromia, deviated nasal septum, breast hypertrophy, and eyelid disorders.

Midwest Medical Insurance Company (MMIC) data are consistent with the national trends. Breast-related claims are the most common; unsatisfactory breast augmentation procedures accounted for 52 percent of all MMIC's paid plastic surgery claims.

Case example: A 22-year-old woman underwent above-muscle breast implantation and was unhappy with the resultant rippling appearance of her breasts. She alleged that the implants were the wrong size and the placement was improper. On her typed consent form, "submuscular" was crossed out and the physician had handwritten "above the muscle not submuscular." The defense could not prove that the handwritten notation was on the form at the time the patient signed it, and the claim was settled for \$30,000.

What are some of the pitfalls of defending plastic surgery claims? How can you protect yourself from patients who cannot be satisfied?

Defending Plastic Surgery Claims

One of the most common problems seen in plastic surgery malpractice claims is the mismatch of physician and patient expectations. Subjective terms like "small scar," "hidden scars," and "some bruising" may be interpreted very differently. Mismatched or unrealistic expectations may lead to dissatisfaction and a claim of negligence.

Case example: A 32-year-old woman sought liposuction and a thigh lift from a plastic surgeon. She had already undergone abdominoplasty by another physician. Shortly after her first surgery, she complained that her scars were visible and that the surgeon had "promised" her they would be hidden by her bathing suit. The surgeon revised the patient's scars to make them higher on her buttocks. She continued to complain that the scars were too big and too visible, and he revised the scars again. Each revision required the removal of more skin. Three months after the third surgery, the patient wrote a very angry letter describing the skin retraction she had suffered as a result of excessive skin removal. Now unable to abduct her legs more than 30 degrees, the patient was furious with her outcome and sued the physician. The case was complicated by the physician's delay in dictating his operative notes; all office and operative notes for all three surgeries were dictated and transcribed *after* the patient's complaint letter was received. The case was eventually settled for hundreds of thousands of dollars.

"While it would be useful to be able to defend a case by saying a patient's psychological makeup resulted in their dissatisfaction, in reality, plaintiff attorneys would turn that right back onto the surgeon," notes defense attorney J. Richard Bland of the Minneapolis law firm Meagher & Geer. "If a patient has psychological problems that contribute to their ongoing dissatisfaction with their appearance, the implication will be that the plastic surgeon should have determined that before proceeding with elective surgery."

The defense of many plastic sur-

gery malpractice claims is hampered by a lack of documentation and by inadequate informed-consent procedures. "Timely documentation is critical to defending any malpractice claim, but the quality of the documentation is also important," says Bland. "What are you telling your patients in the informed-consent process? Make sure it's in their chart."

According to Bland, many informed-consent cases turn on what outcome the surgeon allegedly promised or guaranteed. "Avoid guaranteeing that the patient will look a certain way. If possible, fully describe any bruising, bleeding, drains, scarring, or other potentially undesirable after-effects. Make sure you educate the patient about the recovery process and what factors affect healing. Many lawsuits are generated simply because the patient was unpleasantly surprised by their result—a result the surgeon may find completely acceptable."

Avoiding lawsuits requires some vigilance on the part of physicians. Some of the best lessons are learned from actual claims; good risk man-

agement can help prevent such claims in the future.

Risk-Management Advice

DOCUMENTATION

Documentation should always be completed contemporaneously with the patient visit. Ensure that the documentation is thorough, particularly if patients are expressing reservations about or dissatisfaction with their appearance. Quotes from the patient, either positive or negative, should be included in the chart.

INFORMED CONSENT

The informed consent discussion should be fully documented. If patients watch a video, read a brochure, or view before-and-after photos of other patients, make sure to document that educational process completely.

Informed consent for any procedure is a process of educating the patient about the risks, benefits, and alternatives, then obtaining the patient's consent to treatment. Signed consent forms may not be helpful in

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defending a claim if there is no other documentation of the educational process. It is also wise to ensure that the consent process covers all the bases, including separate authorization to release patient information.

AUTHORIZATION TO RELEASE INFORMATION

A separate, written authorization is necessary to release any patient information (e.g., medical records, photographs). Authorizations to release patient information should clearly spell out the intended release, the intended recipients, and any restrictions on the release of information.

Case example: A 25-year-old woman had breast augmentation and signed a release stating that her photos could be used for "medical lectures or in scientific publications." She later referred a friend to the same plastic surgeon and he showed the prospective patient photos of non-identified patients who had undergone breast augmentation. The patient recognized her friend and told her she had seen her photos. The

release form did not authorize the use of photos for patient education. This claim was settled for \$5,000.

PATIENT SELECTION

Patient selection is seldom covered in risk-management literature for cosmetic procedures. Yet, appropriate patient selection may be key to preventing malpractice claims.

Some patients seeking repeated cosmetic procedures may suffer from body dysmorphic disorder; surgeries to "rectify" their perceived flaws may actually worsen the disorder, leading to further unsuccessful procedures.³ Preoccupation with or significant distress over an imagined or slight defect in appearance is a warning sign to plastic surgeons. Because the goal of any elective cosmetic procedure is a satisfied patient, spending time in the initial interview assessing the patient's motivations for surgery may be invaluable.

Ultimately, in any cosmetic surgery encounter, it is the patient's perception of the outcome and not the surgeon's that counts. Taking the

time to properly interview patients, educate them thoroughly about the requested procedure, candidly explain the anticipated outcomes, and document the process from interview through final visit can help minimize malpractice exposure. **MM**

Debra McBride is the assistant vice president, Risk Management, at Midwest Medical Insurance Company in Minneapolis, a physician-owned malpractice insurer covering physicians, clinics, and hospitals in Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Wisconsin, and Illinois. She is a frequent lecturer and author and advises physicians on a variety of risk-management issues.

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STRESS continued from page 9

♦ **Exercise.** Most of us don't even get off the couch to change the TV channel or get out of the car to open the garage door—we use the remote. Although no one uses a remote to open the refrigerator door, I suspect that's next. As a generic guideline, 200 minutes of regular exercise a week provides enormous dividends. This means walking for approximately 20 to 30 minutes each day.

♦ **Weightlifting.** In Gail Sheehy's book "New Passages: Mapping Your Life Across Time," she notes that by age 70, 70 percent of women cannot lift a gallon of milk, about 10 pounds. By the same age, approximately 25 percent of men cannot lift a gallon of milk. Lifting weights every other day strengthens muscles and can help prevent osteoporosis and other health problems. You can determine a reasonable program by how much you can lift comfortably. Suppose you can do a biceps curl with 20 pounds. Eighty percent of that figure is 16 pounds. A sensible program consists of a set of eight to 12 repetitions with a 16-pound weight so that the last repetition is at the point of maximum muscle fatigue. Most of the benefit of weightlifting occurs with only one set.

♦ **Time management.** Do not spend time on issues that are not a priority. That means making a list in the morning or the previous evening so you can focus on what is important. If you say yes to everything, you are in effect saying yes to nothing. We have only so many ergs

of energy in the morning, and if we do not choose how to use them, they will evaporate like the morning dew. If necessary, turn off the pager, the e-mail, and the computer. And never underestimate the time a task will take. Everything takes three times longer than expected (Creagan's Law).

♦ **Sacred space.** One of the most important sanity-saving practices is to spend time at a sacred space where you can recharge. This may be the Boundary Waters, Glacier National Park, a lake, or a virtual space we create around ourselves. The world's great religious leaders took time to get away to the mountain or the desert to become refreshed and renewed. Solitude is one of the keys to the kingdom.

The quality of care is directly related to the health of the caregiver. The hassled, frazzled, fried physician is hardly suited to give patients and their families the care and compassion they deserve. Physicians, we do need to heal ourselves.

MM

Edward Creagan is the American Cancer Society Professor of Clinical Oncology at Mayo Clinic, the John and Roma Rouse Professor of Humanism in Medicine, and the Ben R. Sischy Professor of Humane Medicine. He is also president of the staff at Mayo Clinic. He is an avid marathoner and golfer.



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About Face



"Brazil" is one of the few films to touch plastic surgery.

*In literature and film, a change in one's face
often brings about a change in character.*

Jon Hallberg, M.D.

Aylmer, a man of science, gazes at his wife, Georgiana, with a concerned, puzzled look. Finally, he speaks. "Georgiana, has it never occurred to you that the mark upon your cheek might be removed?" His wife is shocked—of course it hasn't. In fact, she was under the impression that the mark might be a charm. Her husband responds, "Ah, upon another face, perhaps it might. But never on yours! No, dearest Georgiana, you came so nearly perfect from the hand of nature, that this slightest possible defect—which we hesitate whether to term a defect or a beauty—shocks me, as being the visible mark of earthly imperfection." Aylmer further notes that the mark's "shape bore not a little similarity to the human hand."

So begins the cautionary tale "The Birth-Mark,"

by Nathaniel Hawthorne. Though written over 150 years ago, the story gets at the heart of the current controversy surrounding enhancement therapies. That is, if a "flaw" was not pointed out to us, we would see no reason to correct it. Unlike treatments that restore or maintain health, physical enhancement or elective cosmetic surgery is not necessary—it is not essential to life. We have it done to please others or ourselves because we have been taught that a certain appearance is desirable or essential. Pimples, crooked teeth, hair loss, a small chin, a large nose—and birthmarks—would have no bearing on our physical or emotional well-being were it not for the opinions and potential ridicule of others. But these problems cause anxiety, and we devote tremendous resources, from cosmetics and diet aids to braces and medical specialties, to them. As children,

we often hear "Don't judge a book by its cover"; "Beauty is only skin deep"; and "Beauty is in the eye of the beholder." But these adages ring false in a society that treats beauty and perfection as the norm.

"Aberrations" of the face are particularly troubling, since the face is our calling card, seemingly a direct, external manifestation of the soul. The arts and pop culture are filled with examples of our obsession with the face and its imperfections.

When facial disfigurement occurs, whether through birth, surgery, accident, or spell, the responses of those affected tend to fall into certain categories. One possible reaction is to disguise the disfigurement. In a way, this is akin to Kubler-Ross's first stage of dying: it is a form of denial. The person hides his or her face behind a mask, destroys mirrors, avoids others' scrutiny. The situation can take on mythic proportions, as in "The Phantom of the Opera," "Beauty and the Beast," and "Star Wars" (the Darth Vader character).

Physical isolation or banishment is also common. A classic example is the plight of people suffering from leprosy or Hansen's disease. Lepers have been relegated to colonies and leprosariums for centuries, a practice that continues today in India, northeastern Africa, and Southeast Asia. It occurred in this country on the Hawaiian island of Molokai and at the Hansen's Disease Center in Carville, Louisiana, which closed only recently. In her 1995 novel "The Dark Light," Norwegian author Mette Newth describes the horrifying experience of a young girl who was sent to live and die in St. Jorgen's, a leprosy hospital in Bergen, Norway, in the early 19th century.

In the 1994 film "The Man Without a Face," Mel Gibson's character lives alone on the Maine coast and is the subject of local legend. He was burned in a fiery crash of suspect circumstances, but it is his disfigurement that truly isolates him.

In the movies, changing one's face inevitably brings about a change in character. In the 1941 film "A Woman's Face," Joan Crawford plays a woman

who was severely burned as a child. She turns to a life of crime because "life turned away from me." But all that changes when she meets a plastic surgeon who removes her scars. Suddenly she is beautiful and complete. Children look at her and smile. She no longer hides her face in shadow or under her hat.

The 1966 film "Seconds" is the story of an average man who is dissatisfied with who he is and how he looks. If he could change his appearance, he thinks, his life would improve vastly. He undergoes plastic surgery and becomes ... Rock Hudson! To his surprise (but not ours), however, the result is unfulfilling.

A more recent example of this kind of face-character transformation can be seen in the 1997 film

"Face/Off," starring John Travolta and Nicolas Cage. In this most improbable of films, John Travolta's FBI character elects to have his face removed (really!) and exchanged for a new face—that of the terrorist Cage. "In order to trap him, he must become him," the trailer states. Of course, face swapping is not enough; each character must behave

"Aberrations" of the face are particularly troubling, since the face is our calling card, seemingly a direct, external manifestation of the soul.

like the other. As the cop turns into a criminal and the terrorist plays a suburban father, these nemeses become gross caricatures of each other. Travolta lets his inhibitions and id run free, something that many of us have experienced when we've donned a costume or put on a mask. This loss of inhibition theme is also the crux of Jim Carrey's 1994 film "The Mask."

In 1976, John Updike wrote a fascinating story for *The New Yorker* called "From the Journal of a Leper." The narrator is a man with severe psoriasis who is a potter of exceptional skill. His work is delicate, beautiful, flawless—everything his face and skin are not. Early in the story, the man begins to receive dermatologic treatment. At first the changes are imperceptible. Then a metamorphosis occurs. As the man's face becomes more clear and more socially acceptable, his pottery becomes rough, crude, and purposely flawed. Eventually, the patrons who once prized his work come no more.

It is ironic that Hollywood—virtually synony-

mous with enhancement—is so reluctant to address the subject of plastic surgery. One of the few films to do so is Terry Gilliam's 1985 work, "Brazil." In it, the protagonist's mother undergoes plastic surgeries with a traditional "knife" man while her best friend chooses the more progressive "acid" man. By the film's end, the mother is unrecognizable. She has metamorphosed from a typical 60-something into a stunning beauty, surrounded by admirers and irritated by her pestering son, who now looks older than she. Her best friend, on the other hand, has been reduced to a gelatinous version of her former self, sloshing about in her coffin like a Jell-O salad.

Perhaps there is hope in Tinsel Town, however. TV's "Star Trek" in its recent incarnations has thrown the beautiful-face standard a curveball. The multitude of faces revealed in any episode forces us to rethink our ideas about what is normal. Almost all the faces shown are "abnormal" by our standards but are completely acceptable to the other characters. Of course, since the characters are literally out of this world, these shows can get away with this. (Interestingly, while the inhabitants have less-than-perfect faces, each has a more-than-perfect body.)

By the end of Hawthorne's tale, Aylmer's obsession with his wife's subtle imperfection has deadly consequences. He concocts a strong potion, which Georgiana eagerly drinks. As he watches, the drink slowly removes the "shocking" birthmark, much as an eraser removes an errant line. But, as the little hand fades, so does the spark that ignites Georgiana's soul, and soon she dies. Perfect, but dead. Hawthorne's lesson to us all.

MM

Jon Hallberg is a physician at the Fairview Nicollet Mall Clinic and

is working on a screenplay about TB. His *Medicine & the Arts* column appears periodically in Minnesota Medicine.

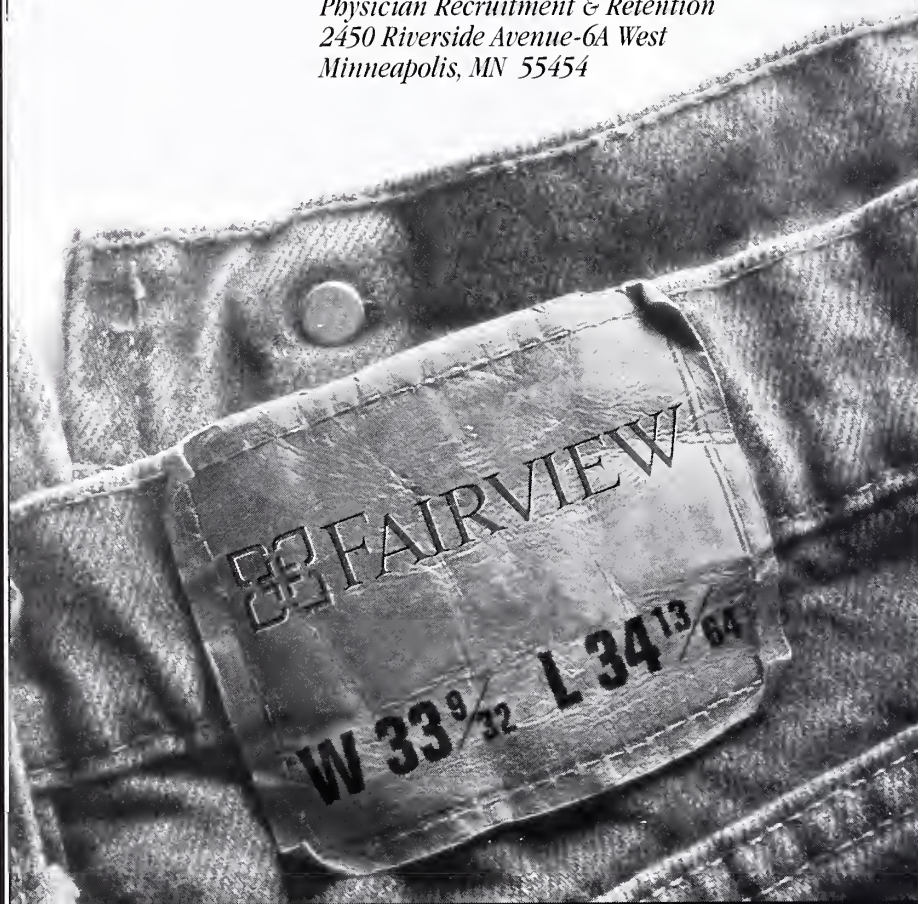
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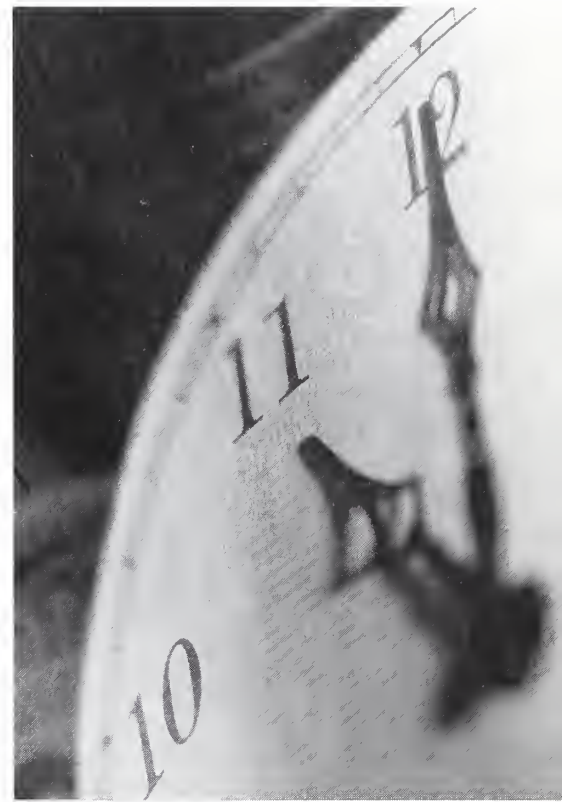


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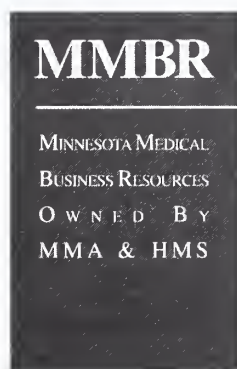
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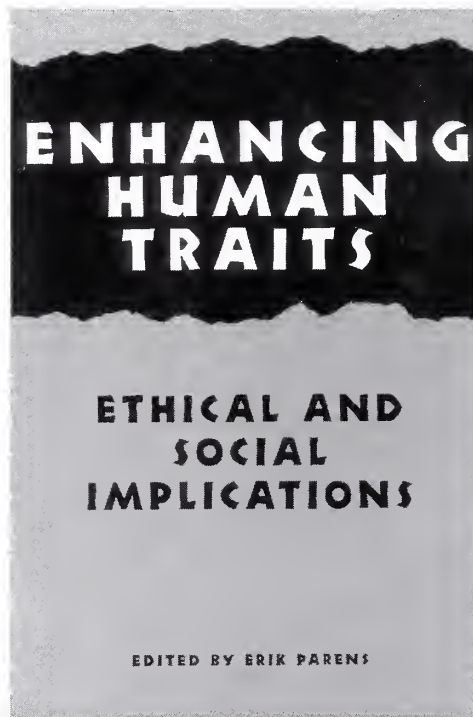
Beyond Better

A new collection of essays, "Enhancing Human Traits: Ethical and Social Implications," examines the ways that "enhancement medicine" stretches traditional definitions of health and disease.

Reviewed by Charles R. Meyer, M.D.

In one of our treasured family stories, my daughter at age 7 was overhelping herself to one of her favorite dishes. After giving her numerous warnings to stop, my wife firmly said, "Hilary, you're taking too much." To which she replied, "I want too much." Cute but telling, this saga could be a metaphor for 1999 medicine. Eager, energetic, and hungry, medicine and its technology want to do more, and probably too much. At the end of a century in which we conquered smallpox, learned how to transplant kidneys and hearts, and found limitless destinations for diagnostic and therapeutic catheters, medicine seems antsy to move beyond the boundaries it historically has honored. Practitioners in Osler's time were content to comfort, while nature cured some patients. Physicians from Fleming onward expected to cure most patients and comfort the remaining few. Millennial doctors, however, are pushing beyond cure, beyond comfort, beyond even disease to make well people better than well—to enhancement.

Enhancement medicine takes the average and tries to improve it, or it redefines the average. Prozac given for nondepressive states, as described by Peter Kramer in "Listening to Prozac," gives "normal" people "better" personalities. Cosmetic surgery makes average-looking people "better" looking. Growth hormone given to short children with normal growth hormone levels makes these kids tall-



er, and in their parents' eyes, "better." The idea that medical practice should include potentially dangerous therapies and treatments for people who in previous eras would be considered healthy is revolutionary. And, like all revolutions, this change provokes questions—about the goals of medical care and the definition of disease.

These and similar conundrums are addressed in "Enhancing Human Traits: Ethical and Social Implications" (Georgetown University Press, 1998), a collection of 13 essays by bioethicists, philosophers, and religion scholars edited by Erik Parens. The book tackles such weighty issues

as cosmetic surgery and cosmetic psychopharmacology with sometimes ponderous prose. The compilation arose from a 1995 National Endowment for the Humanities grant to the Hastings Center for Bioethics to study the "prospect of technologies aimed at the enhancement of human capacities." The result is a provocative, albeit uneven, presentation of ideas that anyone practicing medicine beyond 2000 should consider.

In the lead essay, Parens, the Hastings Center's associate for philosophical studies, attempts to zero in on the definition of health and disease, medicine's goals, and society's goals. He starts with the World Health Organization definition of health—"a state of complete mental and social well-being"—and cites Tufts philosopher Norman Daniels's proposal that the purpose of health care is "to maintain, restore, or compensate for the restricted opportunity and loss of function caused by disease and disability." However, as Parens's essay demonstrates, definitions are slippery and goals are nearly ungraspable. If we include mental and social well-being in the definition of health, then anything that threatens that well-being is "disease" and potentially merits physicians' attention. Much of the rationalization for cosmetic surgery, for example, has hinged on the adverse psychological effects of looking bad. Medicalizing a behavior or condition redefines what is "normal" and creates a disease, which then needs treatment.

Recently, the antidepressant Paxil was approved for treating "social anxiety disorder," which the ads say is "more than just shyness"—but it sounds a lot like just shyness.

Parens points out that Daniels's suggestion that health care should "restore or compensate for restricted opportunity" raises political red flags and saddles medicine with the task of making everybody normal. Another essayist, Anita Silvers, a professor of philosophy at San Francisco State University, calls this "valorizing the normal" by striving to bring inferior individuals up to "average competence." Is it medicine's job to create a more equal society by chemical or surgical means or to restore capabilities denied by disease? A frequently cited example is that of two short boys—one is short because of genetic inheritance and the other because of a pituitary tumor. Who deserves to receive growth hormone to increase his height? Only the boy whose growth is limited by disease? Or both, because they will each suffer socially

and psychologically?

The problems get even knottier. Silvers observes that deciding to restore someone's "natural endowment" will work only until genetic manipulation allows medicine to tamper with that endowment. Kathy Davis, a professor at the University of Utrecht, documents the experience in the Netherlands, where the basic national health package covered cosmetic surgery until overuse compelled the government to try to define "normal appearance." Officials gave up and stopped providing any coverage for cosmetic surgery. Williams College philosopher Carol Freedman and University of Minnesota bioethicist Carl Elliott, M.D., Ph.D. (see the profile on page 8), wrestle with the role of psychotherapeutic drugs in treating bad feelings. Should depression, alienation, and other mental "pains" be treated like a headache? Any practicing physician knows that our society is producing generations of stressed-out citizens. If we treat this "disease"

chemically, are we ignoring the fundamental etiology—society? Indeed, if medicine is driven by whimsical societal norms—the look or the angst of the month—our goals will surely drift with the fads.

This is not an easy book. The thorny concepts are sometimes hidden in a bramble of tortured prose. The issues are huge and the distinctions are hazy. But thinking about enhancement and medicine is important, and it's becoming more important as medicine gets better at making people better. As yesterday's innovation becomes today's standard of care, society won't let medicine rest on its laurels. Medical practitioners will need to know what the right thing to do is when people want more. And physicians will need to know what they shouldn't do when people want too much. **MM**

Charles Meyer is editor-in-chief of Minnesota Medicine.

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A Calendar of Continuing Medical Education Courses

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AUGUST 1999

Aug. 15-20 **Mayo Clinic Review of Women's Health Care** Mayo Foundation; Honolulu, HI. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Aug. 30-Sept. 4 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

SEPTEMBER 1999

Sept. 7-9 **The 2nd Mayo Vascular Symposium** Mayo Clinic, the North American Chapter of the International Union of Angiology, and the American Venous Forum; Mayo Civic Center, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Sept. 9-11 **Practical Surgical Pathology** Mayo Foundation; Mayo Clinic, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Sept. 10 **1999 Primary Care Conference** St. Mary's/Duluth Clinic Health System; Holiday Inn Hotel and Suites, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Sept. 10-12 **Annual Ambulance Medical Directors Retreat** Hennepin County Medical Center; Radisson Arrowwood, Alexandria, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Sept. 13-17 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Sept. 16-17 **Ninth Annual Practical Pediatrics for the Primary Care Physician** Children's Hospitals and Clinics; Chil-

dren's Hospitals and Clinics, St. Paul, MN. CONTACT: Betsy Julius, Medical Education, 2525 Chicago Avenue S, Minneapolis, MN 55404; 612/813-5884.

Sept. 16-18 **62nd Annual Colon and Rectal Surgery: Principles and Practice Course** University of Minnesota; Minneapolis Hilton Hotel and Towers, Minneapolis, MN. CONTACT: Cynthia Iverson, 2550 University Avenue W, Suite 313N, St. Paul, MN 55114; 651/312-1556.

Sept. 23-25 **MAPA's 24th Annual Fall CME Seminar** Minnesota Academy of Physician Assistants; Quality Inn, Winona, MN. CONTACT: Deb Sanders, 3433 Broadway Street NE, Suite 300, Minneapolis, MN 55413; 800/342-5662.

Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

OCTOBER 1999

Oct. 1 **Treating Infections in Your Primary Care Practice** Hennepin County Medical Center; Radisson Hotel and Conference Center, Plymouth, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

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Oct. 2 **Mayo Clinic Hand Center Symposium: Rheumatoid Arthritis of the Hand** Mayo Foundation; Rochester Marriott Hotel, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 4 **Milton G. Ettinger Lecture** Hennepin County Medical Center; Pillsbury Auditorium HCMC, Minneapolis, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 4-8 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Oct. 7-8 **1999 Oncology Conference** St. Mary's/Duluth Clinic Health System; Fitger's Theatre of the North, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Oct. 8 **Contemporary Issues in Dialysis 1999** Hennepin County Medical Center; Sheraton Midway Hotel, St. Paul, MN. CONTACT: Victoria Bowler, 701 Park Avenue, Mail Code 860 D-5, Minneapolis, MN 55415-1829; 612/347-4456.

Oct. 8 **Electrocardiography for Primary Care Physicians** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park

Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 9 **Medical Management of the Surgical Patient** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 14-15 **Annual Forensic Science Seminar** Hennepin County Medical Center; Pillsbury Auditorium HCMC, Minneapolis, MN. CONTACT: Gail Kraemer, 530 Chicago Avenue, Mail Code L 870, Minneapolis, MN 55415; 612/347-7705.

Oct. 28 **Geriatric Care for the Primary Care Physician** Mayo Foundation; Mayo Foundation, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 29-30 **Advanced Life Support in Obstetrics** Hennepin County Medical Center; HCMC, Minneapolis, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 31-Nov. 5 **Advances in Diagnostic Radiology and Advanced Radiology Life Support Course** Mayo Foundation; Loews Ventana Canyon Resort, Tucson, AZ. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

N O V E M B E R 1 9 9 9

Nov. 1-5 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Nov. 12 **Minneapolis/St. Paul Diabetes Forum** Hennepin County Medical Center; Radisson Hotel and Conference Center, Plymouth, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Nov. 18-20 **Annual Orthopaedic and Trauma Seminar** Hennepin County Medical Center; Minneapolis Convention Center, Minneapolis, MN. CONTACT: Claudia Miller, 701 Park Avenue, Mail Code 862-B, Minneapolis, MN 55415-1829; 612/347-4220.

D E C E M B E R 1 9 9 9

Dec. 6-10 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Dec. 10 **8th Annual Family Practice Update** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

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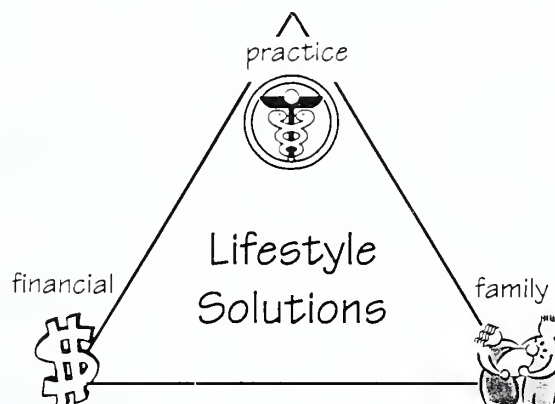
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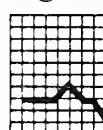

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remain unsold, still farmed by the 70-year-old man for whom they have been bread and life for 30 years. In fact, it turns out the auction wasn't really the focus of our trip after all. All the traipsing and tramping, researching and remembering that we had done in the week before the auction made the real vacation.

People take vacations for lots of reasons. Some vacate home and work for an escape. Some escape to places where their minds can go vacant. Some escape from their vocations to indulge their avocations. My trip to Sheridan was an escape to memory and heritage, a leisurely reach back to touch relatives I had known and ancestors I hadn't, a laying-on of hands in a distant world that remains a part of me—all good reasons to go south for a winter vacation.

.....
—Charles R. Meyer, M.D., Editor-in-Chief


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Nothing Against Passive Voice, but ...

James Kaufmann, Ph.D.

Sorry, but for this column you'll need a quick refresher course on verbs.

Bear with Me Here

Every sentence contains at least one clause (a group of words containing a subject and a verb). The main verb in any clause is always either an action verb or a linking verb. Action verbs show action: "The physician *prescribed* the medication." Linking verbs are usually some form of *be*, such as *am*, *is*, *are*, *was*, *were*, *be*, *being*, *been*. These verbs "link" the subject to a word closely following the verb that describes the subject: "The medication *was* effective."

Sometimes one or more auxiliary verbs help the main verb. The common auxiliaries are *can*, *could*, *do*, *does*, *did*, *have*, *has*, *had*, *may*, *might*, *must*, *shall*, and *will*. Forms of *be* also can function as auxiliaries. Thanks to auxiliaries, we can make verb phrases that convey voice, mood, and tense: "The physician *could have prescribed* the medication."

Just a Little More of This Stuff

Some action verbs, called transitive verbs, take objects (*medication* in the above example) to complete the meaning. These verbs can be expressed in the active or passive voice. When the subject is the agent (or "doer") of the action, the verb is in the active voice: "The physician *performed* the procedure." When the subject is the receiver of the action, the verb is in the

passive voice: "The procedure *was performed* by the physician."

Here's a quick way to recognize a passive-voice verb: 1) the verb phrase contains a form of *be* and ends with the past participle form (*-ed*, *-en*, *-t*, commonly) of an action verb, and 2) the subject is the receiver (not the doer) of the action.

Now It Gets Interesting

Linguists have plausibly argued that we first formulate transitive verbs in the active voice (it's the simpler, more "natural" state of such verbs), and then perform transformations on them to get them into the passive. So, by means of the passive transformation, "The researcher will study the effects of X on Y" becomes "The effects of X on Y will be studied by the researcher." And a further transformation called agent deletion (sounds like something in a spy novel) prunes it to "The effects of X on Y will be studied." Such transformations can occur before a sentence has been spoken, or before or after a sentence has been written. Sometimes they serve a conscious purpose; sometimes they don't.

Passive Voice: Virtues and Vices

The passive voice allows you to emphasize what was done, rather than who did it. Look at the methods section in any research article to find writers using the passive voice for this purpose. When consciously used

in this way, the passive is helpful. However, it has a few harmful effects, especially when writers use it carelessly.

First, either the word count increases or the amount of information decreases. The passive's need for a form of *be* brings a word into the sentence, and if the agent of the action remains in the sentence, the preposition *by* materializes as well. Agent deletion can help with word economy, but in many cases at the expense of important information. Second, sentences become more complex. Long prepositional phrases often hang from the subject, requiring readers to store more information in short-term memory while they wait for a verb. Third, using the passive voice increases the probability of diction problems. The passive voice has an institutional sound to it that can encourage writers to make diction choices consistent with that sound, and the writing becomes even more turgid (for examples, see my June 1999 column). Finally, the passive voice simply lacks the punch of the active voice.

Taken individually, these effects may seem trivial, but their cumulative effect on a text is significant. In general, replacing passives with active-voice verbs is a simple operation that will greatly help your writing. MM

James Kaufmann is director of the Office of Communications, Hennepin Faculty Associates, in Minneapolis. © 1999 James Kaufmann

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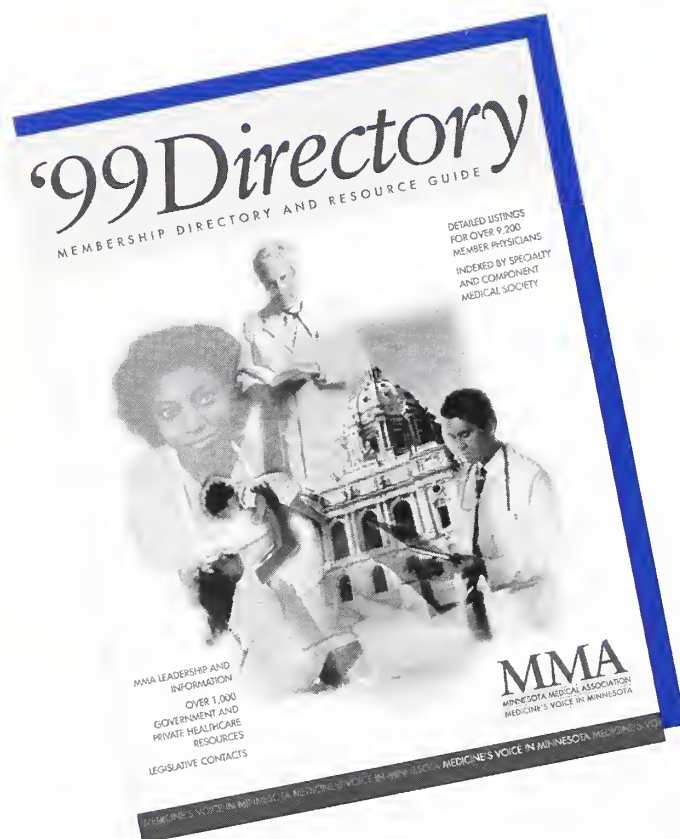
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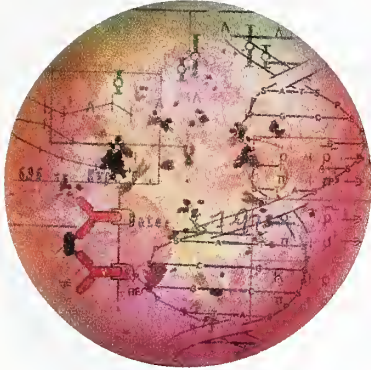
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Parachutes, Polar Bears, and Patients

One cloudless spring day in 1969, giddy with independence and invulnerability, I jumped out of an airplane. I have never considered myself a risk-taker. My friends had parachuted and survived to tell their



tales, so I knew it was "safe." It was also exhilarating. Unlike George Bush, however, I will not do it again. And I'm not sure I would do what Drs. Dan Cohen and Robert Hoerr have done. As detailed in "Cashing In on Their Options" (page 20), these two physicians left their medical practices to pursue medical business

in risk, they immerse themselves in it.

In his recent book, "The Polar Bear Strategy: Reflections on Risk in Modern Life," John F. Ross explores the social psychology of confronting risk. In the past, people made risk decisions based on "horse sense, anecdote, past experience, and intuition." In 1999, we can measure risk. We have experts on risk. We pass laws protecting us from risk. What has not changed, according to Ross, is that different people approach risk differently.

Ross experienced that firsthand on a canoeing expedition in the Canadian Arctic. On that trip, Ross and his fellow paddlers encountered a polar bear paw print. For two days, they debated how best to defend themselves against the risk of polar bears. Everybody had a different strategy.

Ross argues that the tendency to overestimate the hazards of visible, exotic, unfair, or artificial risks is universal. Yet there is a unique group of people who tolerate or seek out risky activities despite the possible consequences. Evel Knievel gets maimed jumping canyons on motorcycles. Gamblers are driven to bankruptcy. These "sensation-seekers" seem to need a higher level of stimulation than most of us. Whether driven by Freudian death wishes or by pumped-up dopamine or MAO pathways that they have inherited, risk-seekers, says Ross, have a higher threshold for saying, "No, that's too scary."

Perhaps it's best not to have Evel Knievel for your doctor. Perhaps living a less adventurous life leaves a person freer to help others encounter frightening disease. So most of us physicians likely don't look for polar bears in our professional lives. Maybe some of us get our taste of risk on a white-water river or during a once-in-a-lifetime parachute jump. Maybe some of us are willing to tempt the financial fates, fail once, and bounce back as Dan Cohen did. But we need to remember that many of our patients are fearing polar bears when they come to us. Our job is to gauge the risk, map out a strategy, and help our patients handle the threat. That's exhilarating in its own way.

.....

—Charles R. Meyer, M.D., Editor-in-Chief

.....
*"Physicians
 are not
 strangers to
 risk; we are
 students and
 brokers of
 risk."*

ventures. The risks they have taken aren't as threatening as dud parachutes, but they do prompt reflections on risk-taking.

As a career, medicine traditionally has been "safe." Admission to medical school is a victory of intellect applied to the school game: learn it, get tested on it. Medical training has tended to filter out daredevils unwilling to sweat through hours of memorization and call. It rewards persistence, consistency, and reliability. Medical training is a lot of work, but once practicing, the average physician makes a comfortable living and gains community respect. Physicians emerging from training in recent years have increasingly shunned the haven of private practice for salaried positions with large organizations, jobs that apparently are even more stable. When it comes to their professional lives, physicians tend to be risk-shy if not risk-averse.

Yet physicians are not strangers to risk. Indeed, we are students and brokers of risk. We learn the risks of procedures, medications, and lifestyles. We learn to balance benefits with risks of treatment. We study the risks of our daily actions and try to practice risk management to avoid malpractice. As brokers, we translate what we have learned and guide our patients through risky illnesses. Physicians don't just dabble

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So talk to your doctor, especially if you have risk factors for heart disease, like smoking, diabetes, high blood pressure or high cholesterol; or if you're pregnant, nursing or taking medications.

1. Source: Physician Drug and Diagnosis Audit (PDDA), November 1996–October 1997, Scott-Levin, a Division of Scott-Levin, PMSI, Inc.

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Patient Information about IMITREX Tablets and IMITREX Nasal Spray for migraine headaches.
Generic names: sumatriptan succinate, sumatriptan

Please read this summary of information about IMITREX before you talk to your doctor or start using IMITREX. No summary can take the place of a careful discussion between you and your doctor. Only your doctor has the medical training and the complete prescribing information necessary to determine if this medicine is right for you. Once you read this summary, you should discuss with your doctor whether IMITREX is appropriate treatment for you and ask any questions you may have.

WHAT IS IMITREX?

IMITREX is the brand name of sumatriptan, a drug intended to relieve your migraine headaches but not to prevent or reduce the number of migraine headaches you experience. IMITREX should be used only to treat an actual migraine attack. IMITREX can be obtained only with a doctor's prescription and should be used by adults only after discussing the choice with your doctor, taking into account your individual preferences and medical circumstances.

HOW DOES IMITREX WORK?

How IMITREX works is not completely understood. IMITREX is a 5-HT₁ agonist that seems to relieve migraine headaches by acting like a brain chemical called 5-hydroxytryptamine, causing some blood vessels in the head that are swollen during a migraine to constrict (that is, to become smaller), which helps relieve migraine headache.

IMPORTANT SAFETY CONSIDERATIONS

Although the vast majority of patients who have taken IMITREX have not experienced any significant side effects, some patients have experienced serious heart problems and, rarely, considering the extensiveness of IMITREX use worldwide, deaths have been reported. In all but a few instances, however, serious problems occurred in patients with known heart disease, and it was not clear whether IMITREX was a contributing factor in these deaths.

Serious events relating to the blood vessels in the head (e.g. brain hemorrhage, stroke) have been reported in patients who were taking IMITREX. Some of these have resulted in death; however, the relationship of IMITREX to these events is uncertain. In a number of these cases it appears possible that patients were not experiencing a migraine but rather an event due to blood vessel disease in the head. IMITREX was given in the incorrect belief that the person may have been suffering a migraine. Therefore, you should not take IMITREX if the headache you are experiencing is different from your usual migraine attacks. People who suffer from migraines may be at increased risk of certain blood vessel events in the brain (e.g., hemorrhage, stroke, or transient ischemic attack.)

Ask your doctor about these and additional safety considerations.

WHO SHOULD NOT TAKE IMITREX?

Some types of migraine headaches should not be treated with IMITREX, and some patients should not take IMITREX because of an increased risk of serious side effects.

- If you have had a heart attack, stroke, transient ischemic attacks, peripheral vascular disease (including ischemic bowel disease or Raynaud's syndrome), or any sort of heart disease or symptoms that are associated with constriction of blood vessels, such as ischemic heart disease, angina, or coronary artery vasospasm, you should not use IMITREX.
- If you have uncontrolled high blood pressure, you should not use IMITREX.
- If you are taking certain drugs for depression, talk with your doctor. IMITREX should not be used if you take or have taken within the last 2 weeks, monoamine oxidase inhibitors (MAOIs).
- Your doctor will discuss with you the type of migraine headaches you have. If you have hemiplegic or basilar migraine, you should not take IMITREX. IMITREX should be used only in patients who have been diagnosed by a physician as having migraine with or without aura.
- Tell your doctor about any other medications you are taking. If you are currently taking any migraine medications that include ergot alkaloids, such as methysergide or dihydroergotamine, or other 5-HT₁ agonists, do not take IMITREX within 24 hours of taking these medications.
- Do not take IMITREX if you are allergic to sumatriptan or any of the ingredients in IMITREX.

WHAT MEDICAL PROBLEMS OR CONDITIONS SHOULD I DISCUSS WITH MY DOCTOR?

- If you have risk factors for heart problems, you should tell your doctor. Your doctor should examine you for heart disease to see whether IMITREX is appropriate for you. Risk factors include high blood pressure, high cholesterol, obesity, diabetes, and smoking. Other patients with risk factors for heart disease are women who are past menopause (whether natural menopause or menopause resulting from surgery), men over 40 years old, or patients with a family history of heart disease. If you have risk factors and your evaluation for heart disease is satisfactory, your doctor may ask you to take the first dose of IMITREX in the doctor's office.
- Tell your doctor if you have chest pains, shortness of breath, or irregular heart beats.
- Tell your doctor if you are taking selective serotonin reuptake inhibitors (SSRIs).
- Tell your doctor if you have a history of epilepsy or seizures.
- Tell your doctor if you have liver or kidney problems.
- Tell your doctor if you have ever had to stop taking any medication because of an allergy or other problems.

USE OF IMITREX DURING PREGNANCY AND BREAST-FEEDING

Do not take IMITREX if you are pregnant, think you may be pregnant, are trying to become pregnant, are not using adequate birth control methods, or are breast-feeding, unless you have discussed this with your doctor.

HOW TO USE IMITREX TABLETS OR NASAL SPRAY

Tablets: For adults, the usual dose is a single tablet taken whole with fluids. A second tablet may be taken if your symptoms of migraine come back or if you have partial response to the first dose, but no sooner than 2 hours after taking the first tablet. For a given attack, if you have no response to the first tablet, do not take a second tablet without first consulting with your doctor. Do not take more than a total of 200 mg of IMITREX Tablets in any 24-hour period.

Nasal Spray: For adults, the usual dose is a single spray administered into one nostril. If your headache comes back, a second nasal spray may be administered anytime 2 hours after administering the first spray. For a given attack, if you have no response to the first nasal spray, do not take a second nasal spray without first consulting your doctor. Do not administer more than a total of 40 mg of IMITREX Nasal Spray in any 24-hour period. The effects of long-term repeated use of IMITREX Nasal Spray on the surface of the nose and throat have not been specifically studied.

The safety of treating an average of more than four headaches in a 30-day period has not been established.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF USING IMITREX?

Do not rely on this summary alone for information about side effects. Your doctor can discuss with you a more complete list of side effects that may be relevant to you.

The most frequently seen side effects are tingling and warm/cold sensations with IMITREX Tablets and bad/unusual taste with IMITREX Nasal Spray.

- Some patients feel pain or tightness in the chest or throat when using IMITREX. If this happens to you, discuss it with your doctor before using any more IMITREX. If the pain is severe or does not go away, call your doctor immediately.
- If you have sudden or severe abdominal pain after taking IMITREX, call your doctor immediately.
- Shortness of breath; wheeziness; heart throbbing; swelling of the eyelids, face, or lips; or a skin rash, skin lumps, or hives happen rarely, but if they happen to you, tell your doctor immediately. Do not take any more IMITREX unless your doctor tells you to.
- Some patients have feelings of tingling, heat, flushing (redness of the face lasting a short time), heaviness, or a feeling of pressure after taking IMITREX. A few patients may feel drowsy, dizzy, tired, sick, or experience nasal irritation (Nasal Spray only). Tell your doctor about these effects at your next visit.
- If you feel unwell in any other way or have any problem that you do not understand after taking IMITREX, tell your doctor immediately.

WHAT SHOULD I DO IF I TAKE AN OVERDOSE?

If you have taken more medication than you have been told, contact either your doctor, a hospital emergency department, or the nearest poison control center immediately.

HOW SHOULD I STORE IMITREX?

Be sure to keep your medicine in an area that cannot be reached by children. It may be harmful to children.

IMITREX Tablets and IMITREX Nasal Spray should be stored at room temperature and do not require refrigeration. Do not store above 86° F (30° C) or below 36° F (2° C). Store away from heat and light. If your medication has expired (the expiration date is printed on the label) throw it away as instructed. If your doctor decides to stop your treatment with IMITREX, do not save any leftover medication unless your doctor tells you to do so. Throw it away as instructed.

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Heeding the Call

FOR THE MMA'S INCOMING PRESIDENT, JOHN VAN ETТА, M.D.,
THE CONTENTS OF THE HIPPOCRATIC OATH ARE NOT
JUST WORDS; THEY'RE WORDS TO LIVE BY.

"Twenty-five hundred years can't be wrong," says John Van Etta, M.D., incoming president of the MMA. "The essence of the Hippocratic oath is to take care of each other, for physicians to be kind to one another and to their patients and community."

At the end of this month, when Van Etta, 48, takes over as president of the MMA, he'll have a new forum for fulfilling that obligation. The St. Mary's Duluth Clinic Medical Center internist joined the MMA in 1980. Since then he has served the association in a variety of capacities—as a delegate to the MMA House and as a member of the MMA Committee on Legislation, the Uniform Credentialing Task Force, and the Strategic Planning Committee. He is also a teller to the AMA House of Delegates and a member of the AMA Reference Committee on public health. In 1994–95, Van Etta was president of the Lake Superior Medical Society.

No stranger to the airwaves (he was a radio announcer at WELY in Ely, Minnesota, at age 15), Van Etta has participated in radio broadcasts on health care reform, Medicare reform, and end-of-life issues. He is also active in a variety of civic organizations. In addition to his duties as a staff physician, Van Etta is a clinical assistant professor at the University of Minnesota–Duluth School of Medicine, and a preceptor for family practice residents there. He holds staff appointments at three hospitals and is medical director of a nursing home as well.

Van Etta, a tall, somewhat reserved man with a neatly trimmed beard and shy smile, says he was drawn to primary care because of the challenge of trying to piece together complex puzzles. His interest in pursuing a medical career was

sparked by Jack Grahek, M.D., a respected practitioner and the mayor of Ely, where Van Etta grew up. To Van Etta, Grahek was what a family physician should—or could—be, or as Van Etta put it, "what medicine was all about."

Van Etta attended Vermilion Community College and completed a degree in biology at St. John's University in Collegeville, Minnesota, with an eye toward medicine. He did not take medical school admission for granted, however. "I knew I could live with myself if I tried to get into medical school and failed, but I couldn't live with the fact that I hadn't even tried to get in, that I hadn't tried my best."

Fortunately, his best turned out to be more than sufficient. Van Etta's father called him to share John's letter of acceptance from the University of Minnesota Medical School, and characteristic of Van Etta and his attention to detail, he remembers it exactly. "It was December 23, 1972, at 10 a.m. Afterwards, I was taking an exam in an art class, my last final, and I was so excited, I couldn't concentrate. It was a term I didn't get a 4.0. But it turned out all right." Van Etta graduated from medical school in 1977 and completed a residency at Abbott Northwestern Hospital in 1980.

A Family Man

The U of M is where Van Etta met his wife, Linda, a St. Mary's Duluth Clinic physician specializing in infectious disease. "Marrying my wife was one of my greatest accomplishments," Van Etta says. The two met on the first day of medical school, during a fire drill. Fate put them on adjacent floors of the same dormitory. "To help pay for my schooling, I worked in the cafeteria and so did Linda. You get to know someone well when you wash

BY JEAN SRAMEK



John Van Etta, with his wife, Linda (left), and daughter, Kathryn.

PHOTOGRAPH BY JEFF FREY

pots and pans together every night." Linda is also an adjunct lecturer at the University of Minnesota–Duluth School of Medicine and has been named Teacher of the Year at UMD.

Van Etta and his wife have a 17-year-old daughter, Kathryn ("my other greatest accomplishment," John says proudly). Katie plays a mean saxophone and will begin her senior year as an honor student at Duluth's Marshall School this fall.

The Van Ettas share a love of travel. Their passports have been stamped in Europe and Japan, and they are just four states (New Mexico, Colorado, Kansas, and Texas) away from their goal of taking Katie to all 50.

'Do No Harm'

The family's joint activities are not all recreational, however. Van Etta extends the concept of public health to include driving safety, an issue about which he is particularly passionate. From road rage to highway congestion, driving safety is a complex topic, one that Van Etta plans to address on a state level as MMA president. "The number of cars on the road has doubled since 1973," he points out, "and there is a high rate of death for girls aged 16 to 18 while driving or riding in cars." For the parent of a teenaged girl, these statistics have personal meaning.

Soon after Kathryn received her Minnesota driver's license, the Van Ettas enrolled in a professional driving school. The whole family logged hours of simulated driving: high-speed maneuvers, skids, emergency conditions—things Van Etta never thought possible in an automobile.

"It was grueling, physically exhausting," says Van Etta, "but we're all better drivers for having done it. I wanted to make sure my daughter could be in dangerous driving situations without hurting herself or others."

Do no harm. For Van Etta, this cornerstone of the Hippocratic oath goes far beyond preventing harm—it includes family and community in addition to patients. His "community" is not just Duluth or the medical center, but all of Minnesota. In fact, when the elections were held for the 1999–2000 MMA president, says Van Etta, he felt as if he knew everyone in the MMA already. "It's interesting how life moves. They're all good friends."

Challenges Ahead

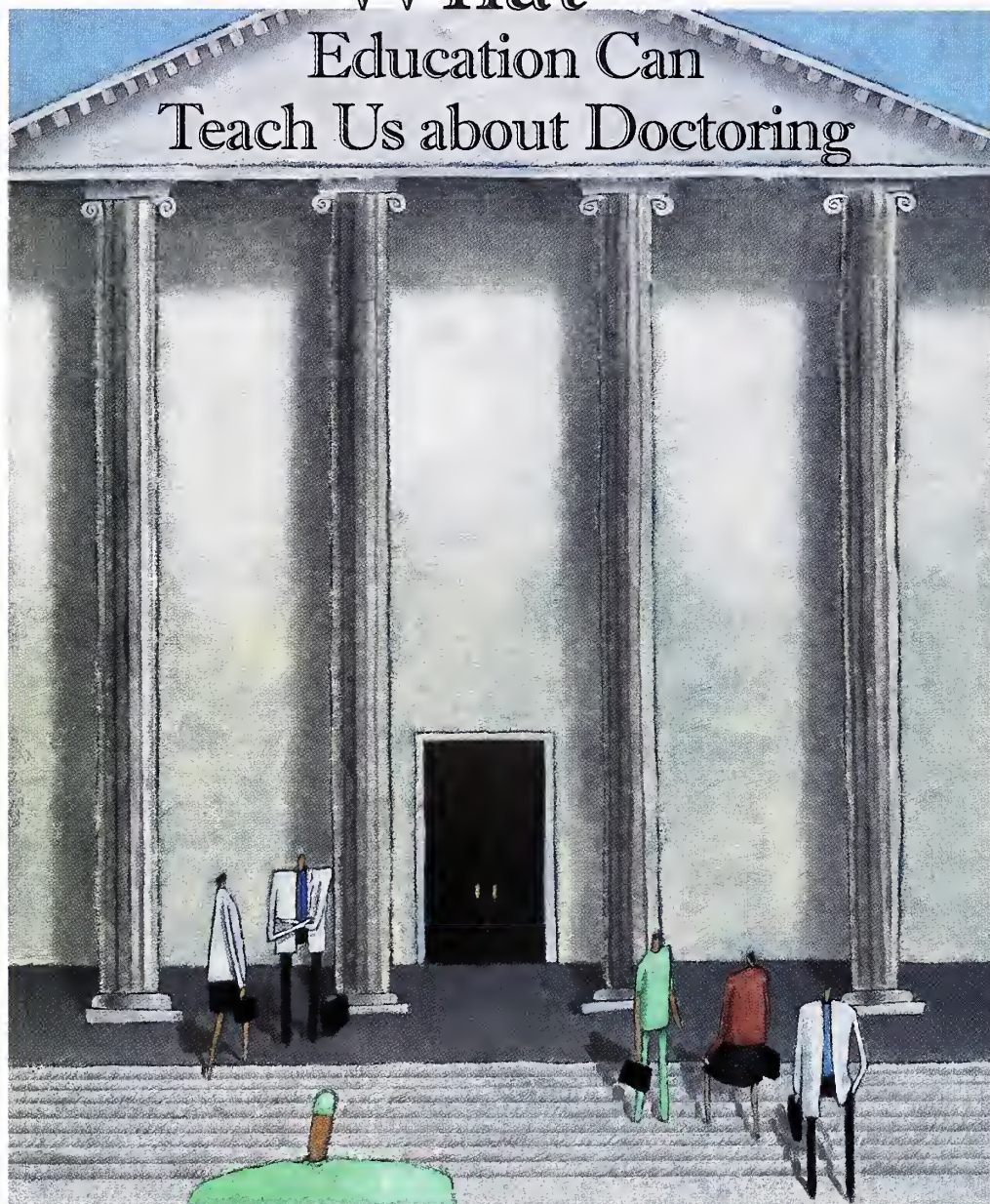
Over the years Van Etta has seen medicine change because of changing demographics. The aging of America has particularly affected his field, internal medicine. "Right now, we have 33 million people in this country on Medicare, and in 10 years, we'll have 77 million," says Van Etta, who has lobbied in Washington, D.C., for Medicare reform. "As physicians, we'll have to confront this. It concerns me, and it's just one reason I'm involved in the MMA.

"We're nearing the end of the millennium," Van Etta says. "Physicians are facing a lot of pressure—social, legislative, economic." However, he believes that the patient is by far the most important element in the medical equation, that the ethical responsibility for care and treatment should transcend bureaucratic concerns such as cost. "Physicians are held to a higher standard, and the public trusts physicians because of our ethics," he says.

"We have a responsibility to uphold those ethics and to make good decisions, not just based on financial reasons, but on what will be best for our patients. We can't make decisions based on short-term economic gains. People expect more of us." **MMA**

Jean Sramek is a program assistant for University College Duluth and a freelance writer. This is her first contribution to Minnesota Medicine.

What Education Can Teach Us about Doctoring



© JOHN BOLESKY FOR ARTVILLE

Like education programs that emphasize learning over teaching, the most successful medical institutions focus on patient health, not health care delivery.

As a member of the University of Minnesota Board of Regents for the past two years, I have had the opportunity to closely observe higher education. From that scrutiny, I have concluded that many important issues facing higher education are strikingly similar to those facing medicine.

One analogy that emerges is this: Teaching is to learning as delivering health care is to health.

Let's take teaching and learning first. The institution of higher education that believes its mission is teaching is a very different institution from one that views its mission as learning. The key contrast resides in the locus of control. In the teaching institution, control is held by the institution. The learning institution, on the other hand, views the learner as holding control, and it transfers power accordingly.

With the learning-centered approach, the student drives the interaction, and the outcomes are defined and judged by the student. The learning institution views learning as a process of discovery that must last a lifetime and must therefore be exciting and engaging. It assesses the needs and desires of the learner/student and adapts appropriately. It analyzes the preferred modes of learning of the various students and amends the materials and interactions. It enhances knowledge retention by promoting the immediate application of the new knowledge. It maximizes the role of fellow learners in the student's learning process. It changes the physical environment of the student not just to accommodate interaction, but to encourage it. It consciously exploits locations and circumstances outside the institution as opportunities for learning. Finally, it relies on the student to assess the worth and limitations of the experience.

Contrast this approach with the experiences many of us had in college. We can readily recall and identify those courses or institutions that emphasized teaching, an emphasis that led to predictable approaches. There was a view of students as tabulae rasae, as not knowing their own needs, and as the objects of the action. There was little recognition of students' varied learning styles; the focus was on the professors and their teaching style. There was a preference for the "data dump": weighty textbooks

(with an equally weighty expectation that the student absorb the contents), large lecture halls with dimmed lights, dozens of slides, little time for questions. And after graduation, few students were invited to critique the successes and shortcomings of their educational experience. Finally, while perhaps valuable and tolerable, the experience left few students craving more of the same.

Successful institutions of higher education are inexorably moving from a focus on teaching to a focus on learning. The most successful ones will move quickly and confidently. Here's why.

First, they no longer hold the keys to information. These days, anyone can "log on" anywhere, anytime, and access desired data. Second, the population of learners is an activated one, with high expectations about what it receives for its time and money, and with every intention of having those expectations met. Third, these institutions recognize that the learners hold the real power. They know you can't teach someone who isn't ready to learn, and they know that carrying on a charade that the institution is in control of the educational process is futile and expensive.

Seeing Our Mission as Health

How does the contrast between teaching and learning relate to the contrast between delivering health care and health?

As with education, the fundamental contrast lies in the locus of control. When we as medical professionals and medical institutions view our mission as delivering health care, we view ourselves as generally knowing what's best for a patient, as being generally responsible for medical outcomes, as defining those outcomes and judging whether they occurred. We talk about "noncompliant" patients. We focus on our role and on our clinics and hospitals. We view our patients as recipients of our efforts. The move away from the paternalism of the past toward more patient collaboration in health decisions is an important step, but it has not yet progressed to a truly patient-centered viewpoint.

If, however, we see our mission as health, we will focus on and yield control to the patient. We will allow patients to define their needs, and we will collaborate

By Maureen Reed, M.D.

on their terms. We will understand that patients have different capacities for change, different motivations for their health behaviors, and different priorities in their lives, health being just one of them. If we see our mission as health, we will allow these individual differences to drive and design our programs, our clinical approaches, our procedures, our resource allocations, and our facilities.

If we see our focus as health, we will fully involve our patients' friends and family members in their care. We will pay attention to and help modify patients' social milieu and physical environment to promote health. We will also tap into the strength, knowledge, and competence of other patients to deliver messages, suggestions, and lessons more effectively than we can alone. We will view health as not simply an exercise in patient participation, but as an exercise in discovery. We will view our patients as being engaged in an important, vital, exciting, lifelong enterprise, instead of an episodic and distasteful one. Finally, we will rely heavily on our patients' assessments of their health status and of the worth of our interactions with them.

As with higher education, the most successful medical professionals and institutions will move quickly toward this approach, which places patients in a position of much more control. And, they will do it for the very same reasons: Health information is no longer owned by medical professionals, an activated population has expectations that the old model no longer meets, and patients are the ones who most substantially influence their own health anyway. When we focus on health, rather than on health care delivery, we will be "doctors" in the historic sense of the word, that is, "teachers." And how well our students (our patients) master their health will be the measure of their, and our, success. **MM**

Maureen Reed is a physician and vice chair of the University of Minnesota Board of Regents. She is also vice president and medical director, contracted care, for HealthPartners. A graduate of the University of Minnesota Medical School, Reed practices internal medicine part time at the Freemont Community Clinic in Minneapolis and is a national speaker on health care quality, service, and cost.

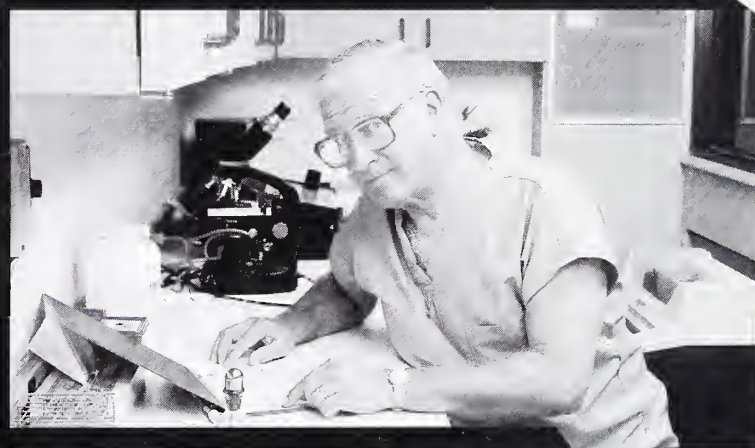
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Staking a Claim on Medical Knowledge

The Patent Profusion

As the number of patents issued for medical procedures has skyrocketed, a clash has emerged between private ownership claims and the free exchange of knowledge.

By Seth Shulman

In the emerging knowledge-based economy, a diverse and growing number of legal cases are challenging the Hippocratic oath's directive for doctors to share medical knowledge "without fee or covenant." In this troubling new legal environment, doctors are patenting medical methods and demanding royalties for their use. Patients may go without drugs and treatments they once could have received. Is the drive for private profits exacting too high a price?

Nearly every pregnant woman in the United States takes a blood test to screen for the possibility that the child she carries will have a birth defect. By measuring the concentration of several substances in the pregnant woman's blood, the so-called multiple-marker blood

screen can warn a woman that her baby likely has a birth defect such as Down syndrome. One of the substances measured in this way is human chorionic gonadotropin, or hCG, a hormone that women produce in the days after conception.

Since the mid-1960s, medical researchers have studied the role of hCG in building up the placenta. In 1989, a researcher named Mark Bogart was awarded a patent for a method based on an observation he'd made about hCG—that elevated levels of the hormone can signal Down syndrome in a fetus.

Bogart, whose work was done in 1986 at the University of San Diego, didn't create a new device to obtain his patent. Instead, he observed a connection between hCG



ILLUSTRATION BY J.W. STEWART

levels and the likelihood of Down syndrome—and recognized the potential use of this correlation in a diagnostic test. Nor did his observation by itself result in the multiple-marker blood screen, since his was only one of three separate observations that make possible today's most commonly administered test. Nonetheless, Bogart's research did open the door for the development of a diagnostic test that inexpensively alerts doctors when more accurate and invasive tests on a fetus might be warranted.

Bogart received U.S. Patent No. 4,874,693, affording him monopoly protection over a "method for assessing placental dysfunction." Now he has made clear his intention to turn his patent into dollars. Bogart claims

the patent entitles him to a \$3 to \$9 royalty every time a lab administers the multiple-marker test. He has made good on his threat to sue labs, doctors' offices, and health maintenance organizations that refuse to pay.

Many *are* paying. According to Andrew Dhuey, Bogart's lawyer, laboratories owned by SmithKline Beecham are paying Bogart royalties in excess of \$1 million per year. Recently, Dhuey says, the Arizona Institute for Genetics and Fetal Medicine agreed to Bogart's royalty demand covering all future screening tests and paid \$90,000 in royalties for tests conducted over the past six years. Given the test's widespread use, Bogart could earn as much as \$100 million in royalties from hospitals, laboratories, and medical research insti-

tutions over the patent's life.

Bogart's intellectual and financial claims have inspired outrage in some quarters of the medical community. As Arnold Relman, former editor of the *New England Journal of Medicine*, told MIT's *Technology Review* magazine, "To claim private ownership rights over national phenomena, the nature of disease, or human biology is a restriction of intellectual freedom that will stifle medical research."

Bogart refused to be interviewed for this story, but Dhuey, his lawyer, argues that Bogart is fully justified in law and logic. Dhuey notes that hospitals and labs "pay royalties every day on devices and drugs that are being used, and it's unfortunate that they don't see that there's no fundamental difference."

Bogart's claims are far from unique. He is one of thousands of physicians and biomedical researchers who have protected medical observations, surgical techniques, and other procedures, some as common as determining the sex of a fetus from an ultrasound image. These patent holders contend that the procedures they develop are no less worthy of patent protection than an improved version of a catheter or an x-ray machine.

Supporters of these claims believe that patents of this kind are essential for medical progress. Patricia Granados, a patent lawyer at the Washington, D.C.-based firm of Foley and Lardner who has litigated many patent infringement cases, warns that without patent protection, emerging industries like gene therapy and medical diagnostics will suffer. "It is questionable whether such industries will be able to obtain the investment money needed for research and development," Granados explains. "Corporations aren't going to invest their money in anything," she adds, "unless they can get a proprietary position."

Welcome to the field of medical research on the cusp of the millennium. A stark and accelerating clash has emerged between the drive for private ownership of medical knowledge and techniques and the tradition of freely sharing this knowledge to improve public health—a tradition enshrined in the Hippocratic oath, which mandates that every physician must teach the craft of medicine "without fee or covenant."

The clash has implications that go far beyond the philosophical underpinnings of the Hippocratic oath. For example, Bogart's royalty demand in some cases exceeds the amount an insurance company will reimburse labs for conducting the test. Already some labs have threatened to drop the blood screen, and public health officials worry that fewer health plans will offer it.

"If the patent is enforced, it will have serious conse-

quences to the health care of women in this country," Mark Evans, professor of obstetrics and gynecology at Hutzel Hospital in Detroit, told ABC News. "I believe in capitalism and rewarding discoveries, but there has to be a point where social responsibility takes precedence over greed."

A Reward for Inventors

Patent infringement cases are very expensive in the U.S. legal system. They routinely cost litigants more than a million dollars. And their outcomes are notoriously unpredictable. So, though many doctors, hospitals, and patent experts scoff at Bogart's claim, some of the nation's most venerable hospitals, medical firms, and testing laboratories have followed their lawyers' advice and reluctantly paid Bogart's royalty.

Oakland, California-based Kaiser Permanente, the country's largest nonprofit hospital chain and health maintenance organization, is an exception. It has not agreed to pay. Instead, it challenged Bogart in court.

Mitchell Sugarman, Kaiser's director of technology assessment, says the HMO contested the claim because of what it implies for its patients and the broader medical community. Kaiser expects to spend well over \$1 million to litigate this case, more than it would have paid in royalties. But Sugarman contends there is a "moral argument" to be won.

Joining Kaiser is a consortium of medical professional groups, including the American College of Medical Genetics, the American Medical Association, and the American College of Obstetrics and Gynecology. The consortium has offered Kaiser financial aid and free expert assistance. The organizations formed the consortium because in their view, the Bogart case represents "a dangerous attack on the availability of an important diagnostic test for pregnant women and on public health policy in this country," says Michael Watson, the consortium's leader and vice president of the American College of Medical Genetics.

On the other side of the issue, the Biotech Industry Association is watching the Bogart case closely. David Schmickel, the association's legal counsel, argues that "medical professionals often ignore the fact that it costs tens of millions of dollars to bring a diagnostic test to market. This kind of research will not be done and those tests will certainly not reach the public unless there is a reward for the inventors at the end."

The issues raised by Bogart's patent are dramatic and humbling in their complexity. They are also new. Until the mid-1950s, the U.S. Patent Office did not issue patents on observations or procedures. Patent directives

and patent-law precedents drew a hard line between devices, like catheters and x-ray machines, and procedures, like blood transfusions or cardiopulmonary resuscitation. Devices could be patented, but procedures could not. This long-standing view was highlighted over a century ago in the landmark 1862 case *Morton v. New York Eye Infirmary*, in which an inventor tried to claim ownership of the burgeoning medical practice of using ether as an anesthetic for surgery. The court invalidated the patent, dismissing it as nothing more than the “naked discovery of a new effect, resulting from a well-known agent, working by a well-known process.”

Before the advent of the knowledge-based economy, the rationale for distinguishing between procedures and devices seemed clear and easy to accept. Developing a medical machine or instrument often requires the inventor to invest significant capital. By granting a patent, the government allows the inventor the opportunity to recoup the cost—thereby encouraging the continued development of medical innovations. The refinement of new treatments or biomedical insights, on the other hand, rarely entailed such costs and rarely involved just one inventor company. Instead, most of the advances came from researchers and practicing doctors sharing knowledge and further developing each other's insights.

The consensus was so strong that the idea of patenting medical knowledge could seem absurd. For example, in 1954, when Jonas Salk developed a polio vaccine, his funder, the March of Dimes, prohibited patenting or receipt of royalties on the results of its research projects. The notion of Salk individually owning rights to the discovery never entered the picture. When Edward R. Murrow, the renowned TV commentator of the day, asked, “Who will control the new pharmaceutical?” Salk

scoffed in reply that the discovery belonged to the public. “There is no patent,” he said. “Could you patent the sun?”

Yet ironically, even as Salk was asking his audacious rhetorical question, the Patent Office's distinction between devices and procedures was beginning to erode, in concert with an expansion of the accepted notion of intellectual property in many disparate high-

tech fields. Beginning with a fateful 1954 patent on a technique to treat hemorrhoids, the Patent Office became increasingly indifferent to the distinction between devices and procedures.

By the early 1990s, many physicians and medical researchers had seen the potential financial benefits of seeking patents on procedures, techniques, and observations, and were petitioning for patents in record numbers. In 1996, *Medical Economics* claimed that the Patent Office was issuing patents on medical procedures at a rate of 100 per month, double the rate of a decade

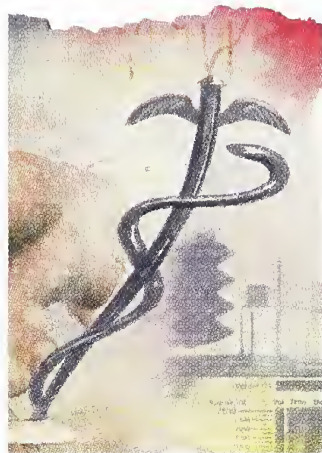
before. Other estimates put the number far higher.

Unfortunately, it is difficult to arrive at more precise estimates of how many such patents there are, because medical patents frequently involve both devices and methods. The category covering surgery does have a subclass explicitly devoted to surgical methods, and it catalogs 485 patents. However, one law firm's search estimated that as many as 134,000 other surgery-related patents likely contain ownership claims on techniques or methods that are used in conjunction with an instrument or device.

‘That’s an Invention?’

All these patents confront medical specialists with a profusion of private claims on methods, observations, and other knowledge that in the past doctors freely used





and shared. Specialists from urologists to eye surgeons have received patent infringement threats.

In one of the best-known cases, several years ago radiologists around the country received letters attempting to exact royalties on a patent covering a technique for determining the sex of a fetus at 12 to 14 weeks with ultrasound. The patent—still valid—boils down to visually distinguishing male genitalia from female. Many in the field derided the claim. As Chris Merritt, a radiologist at the Ochsner Clinic in New Orleans, puts it: “It’s like saying you have a secret method for distinguishing the gender of patients when they take their clothes off for a physical. That’s an invention?”

This claim, however, never reached the stage of litigation. The American College of Radiology publicly condemned the claim. Later the patent holder, obstetrics and gynecology specialist John D. Stephens of San Jose, California, withdrew his royalty demands.

The inherent complexities of the biomedical knowledge economy are probably not going to be resolved by the patent examiners alone. Patent examiners are seldom medical practitioners, and they typically base their decisions on searches of published work aimed at finding out whether anyone has previously reported a procedure or treatment. But published works are often a poor reflection of the unfolding state of medical knowledge; as a result, the examiners grant patents for many procedures that are not novel or even noteworthy. Many ownership claims cover skills most hospitals expect doctors to learn during their medical residencies, skills one generation of doctors traditionally has passed to the next.

For instance, almost all surgical residents are taught how to suture the stomach to the intestines (to treat bleeding ulcers or stomach cancer); a physician owns a patent on a technique for this procedure. Similarly, cosmetic surgeons around the world know how to make slits in a skin graft to expand it; another physician holds a patent covering a technique for this procedure. Still another doctor owns the simple procedure of treating iron deficiency by administering iron under the tongue.

Given the thousands of procedures doctors perform every day, “the proliferation of patents on medical and surgical procedures becomes a frightening prospect,” says Robert Portman, a patent lawyer at the Washington, D.C., firm Jenner & Block. It could “wreak havoc on the delivery of medical services.”

Portman litigated one of the most publicized of the recent medical patent cases. The case generated wide-

spread attention when it came to trial in 1995—and it helped inspire congressional legislation in 1996. In 1992, Arizona eye surgeon Samuel Pallin received a patent on a type of incision, used in cataract operations, that required no stitches to heal. Once Pallin received the patent, he demanded royalties from fellow eye surgeon Jack Singer, who also used the procedure and had written about it in medical journals. Pallin threatened

to force Singer to stop using the technique unless Singer paid.

To Pallin, the patent reflected his rightful intellectual property. “We don’t think of it as greedy when a scientist gets a royalty for coming up with a new [drug] compound. It is ridiculous to say that this is any different,” he retorted to the *Wall Street Journal* after medical professional societies criticized him for his private ownership claim.

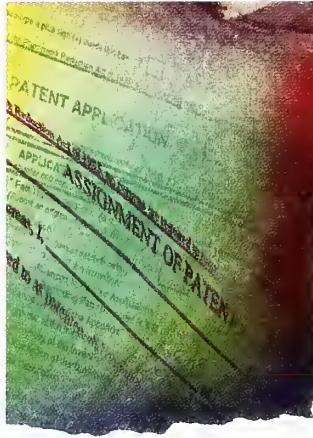
But to Singer, the patent was an affront. An eye surgeon at the Hitchcock Leahy Clinic at Dartmouth Medical College in New Hampshire, Singer had already perfected the procedure in his own practice. He did not patent it. In fact, he taught it to his students and shared it at symposia with other doctors from around the world. Singer maintains that he and many other eye surgeons had developed this type of stitchless incision simultaneously.

Pallin’s claim ran counter to everything Singer believes about his profession, Singer explains. “It would have been much easier to purchase Pallin’s license and let others worry about the problem,” he says. “But from the beginning, I knew I had to fight this as a matter of principle.”

Three years and more than half a million dollars later, Singer won a legal victory. But the victory did not help Singer establish the principle that medical knowledge cannot be patented. Singer won simply because he could document that he had performed the incision for one month prior to Pallin’s patent claim.

Singer’s assertion that medical procedures must be shared among practitioners did find a broader following, however—in Congress. Rep. Greg Ganske, R-Iowa, a plastic surgeon by training, sponsored a bill to ban patents on medical procedures, a policy followed by some 80 other industrialized nations. Ganske warned that if Congress didn’t act, people would one day hesitate to perform the Heimlich maneuver on a choking diner for fear someone might sue them for violating a patent.

But other than banning private patents on nuclear



weapons-related inventions during the Cold War, Congress has been loath to set limits on the robust U.S. patent system. During the 1996 congressional hearings, lawyers from the American Intellectual Property Law Association, the Intellectual Property Section of the American Bar Association, and the Biotechnology Industry Organization argued that the United States risks a “domino effect” that would squelch technological progress if it systematically excludes certain types of patents on policy grounds.

These parties argued that Rep. Ganske’s proposed bill would invite other countries to weaken their patent laws at a time when the United States is pushing these countries to toughen them. The move could embarrass the United States internationally or, worse, put the nation out of compliance with the intellectual property treaty arrangements of the General Agreement on Tariffs and Trade negotiations—arrangements the United States was working to bolster in the international community.

The final legislation, signed by President Clinton in the fall of 1996, sought a middle ground between the two arguments. It specified that doctors and researchers can receive patents on medical procedures, but they cannot sue to recover royalties from other medical practitioners who use the procedures. In other words, Pallin could seek a patent today, but he could not sue Singer. If Pallin won a patent today, the law would make it effectively worthless, little more than an empty professional accolade. Yet the U.S. government still preserves Pallin’s right to claim ownership of his discovery.

The congressional compromise reflects a deep-seated national conflict on this issue. The medical-procedure patent law will curb some of the worst incursions of private ownership claims into the shared terrain of medical education. But increasingly, as bitter intellectual property fights like the Bogart-Kaiser case spread throughout the biomedical field, Congress’ actions may prove inadequate to address the emerging clash between private profit and the shared “infrastructure” of medical education. The legislation will not stop all legal battles. For example, it does not apply retroactively to existing patent claims, which leaves thousands of actionable medical-procedure patents on the books.

More important, the law does little to address similar problems arising in high-tech biomedical research. The legislation focuses on medical procedures, so it does not explicitly cover the vast number of claims such as Bogart’s, which involve insights about the body’s func-

tions that researchers and companies can use to create diagnostic tests or novel treatment approaches.

Indeed, just months before President Clinton signed the congressional law to limit the value of patent claims among medical practitioners, he signed legislation that actually expanded patent rights in biomedicine. That law gives explicit backing to what may be the broadest patent in medical history: on ex vivo human gene therapy.

In 1990, a team of researchers at the National Institutes of Health (NIH) made medical history when they employed a new technique called ex vivo human gene therapy to successfully treat two girls with a rare genetic disorder. In this type of gene therapy, doctors remove cells from the patient and alter them in a lab, outside the body. The medical team took the girls’ white blood cells, inserted an altered virus that would correct their genetic disorder, and reintroduced the corrected white blood cells into the girls’ bloodstreams.

With strong legal advice, three members of the team managed to parlay the experiment into a patent on all ex vivo human gene therapy. The claim is so broad that doctors around the country were shocked when the team won the patent. “Deep disbelief, I’d say that’s what most people feel about the breadth of the patent,” Joseph Glorioso, head of the department of molecular genetics and biochemistry at the University of Pittsburgh, told the journal *Nature*. “This is analogous to giving someone a patent for heart transplants.”

Dusty Miller, a key member of the original human gene therapy team—who was not named on the patent and who is now a researcher at the Fred Hutchinson Cancer Center in Seattle—says such a patent shouldn’t exist, or, at the very least, should be defined far more narrowly. As he puts it, the patent amounts to “another big step toward the bizarre world where people stake claims to the natural processes of the human body.”

Complaints like Miller’s grew louder when the team sold the exclusive rights to this entire new and promising field of medicine to the highest bidder. Ultimately, after various corporate mergers and acquisitions, those rights landed in the patent portfolio of the Swiss pharmaceutical giant Novartis. The patent, and Novartis’ control of it, has far-reaching effects. Novartis can exact royalties from anyone seeking to use the technology; because of this, the treatments that come to market will likely cost more.

Another set of problems posed by such patents is typified by a bitter, ongoing case involving Baxter Inter-

national. Baxter, a large pharmaceutical and health care firm, claims to own a broad license on the technology related to a particular antibody that can be used in bone-marrow transplants for patients with breast cancer and lymphoma, among other diseases. Even though no comparable Baxter product is yet on the market, the company has legally blocked a small competitor—a Bothell, Washington-based firm called CellPro—from marketing its own similar treatment while Baxter tries to bring its own version through the lengthy Food and Drug Administration (FDA) development and approval process. The problem is that Baxter's action could deny cancer patients around the country a promising FDA-approved treatment.

Andrew Yeager, director of bone-marrow transplant programs at Emory University, where physicians have been using the CellPro treatment with some success as a last-ditch effort to save the lives of children suffering from acute leukemia, lamented to the *Seattle Times*: "It's unfortunate that these sorts of things in corporate America can threaten therapeutic clinical trials and potentially life-saving therapies."

The American Cancer Society, about 50 members of Congress, several patient advocacy groups, former U.S. Sen. Birch Bayh Jr., and former Carter White House Counsel Lloyd Cutler made an appeal on CellPro's behalf to Department of Health and Human Services chief Donna Shalala. They asked her to exercise the government's right to intervene in patent disputes that stem from publicly funded research in "extraordinary cases" in which the dispute threatens public health. "CellPro's request is simple. While the court case is allowed to run its course, an FDA-approved product must remain on the market, available to any and all cancer patients who need it," Bayh and Cutler wrote Shalala.

The government denied the request. NIH Director Harold Varmus, who made the ruling, said he was convinced the courts would ensure that no one was denied treatment. Varmus was undoubtedly swayed by the many equally influential voices arrayed against such action, such as Stanford University President Gerhard Casper. Casper wrote to Varmus that to intervene would set a precedent that "would pose a grave threat to university-industry partnerships" and even "put into jeopardy the kind of investments needed today to take medical discoveries through the lengthy processes necessary to bring them to the public."



A Lottery System

The intent of the patent system is, as Abraham Lincoln once put it, to add the fuel of interest to the fire of genius by allowing inventors to reap financial rewards. In the knowledge-based economy, however, the researchers who obtain the patent on a biological process are frequently not the ones who do the work to bring a product to market. Even *Forbes* magazine, the self-described capitalist tool, complained about this aspect of the patent system. *Forbes'* editors wrote in 1994 that the U.S. patent process has too often "become a lottery in which one lucky inventor gets sweeping rights to a whole class of inventions, and stymies development by others."

Forbes was not speaking specifically about the biomedical field, but the observation seems prescient as the Bogart-Kaiser case heads to court in California. But is this kind of a lottery just? Should anyone be allowed to patent a function

of the human body, or a medical method or procedure? As in most patent infringement cases, the court will likely not tackle those broader questions. Instead, the case will probably focus on narrow legal questions. Much of Kaiser's case, for example, will center on the argument that the modern-day multiple-marker prenatal test is only distantly related to the original research Bogart patented.

Bogart noted a correlation between Down syndrome and high levels of the hormone hCG. But in as many as 30 percent of cases, the elevated hCG levels do not correspond to the presence of the birth defect. To make a more reliable test, researchers developed a technique that drew upon other insights similar to Bogart's to screen the blood for the levels of two chemicals besides hCG. The combined indicators considerably enhance the efficacy of the test not only for Down syndrome but for other birth defects as well.

Mike Jacobs, an attorney at Morrison & Foerster representing Kaiser Permanente in the case, notes that articles in the medical literature, including a letter in the prestigious British medical journal *Lancet*, on the correlation between hCG and fetal abnormalities actually predate Bogart's observation. Jacobs hopes that fact may ultimately invalidate Bogart's claim. Even if Bogart does deserve credit for discovering—or at least sharpening our realization of—the correlation between hCG and the probability of Down syndrome, says

Kaiser's Sugarman, "his financially motivated claim does nothing to benefit medical science."

With the courts focusing on narrow issues and the executive branch declining to intervene, only Congress is left to stem the inroads of private ownership into the shared pool of advancing medical knowledge. The Bogart case may inspire that. It has undergone close scrutiny by Greg Ganske, the Iowa Republican largely responsible for the 1996 congressional bill's passage. "Maybe with examples like this," Ganske says, "we will need to go back at this issue again."

For his part, Jack Singer, who persevered—and prevailed—in the cataract-surgery case, says he is deeply troubled by the Bogart case. Only patent owners and their lawyers benefit from carving up medical knowledge into privately held parcels, Singer argues. "Patients, the medical profession, and society all benefit from the long-standing culture of free exchange of medical knowledge."

But as the knowledge-based economy evolves, such arguments must be balanced against the claims of technological progress. If anything is clear in this

increasingly tangled field, it is that there will be no simple answers anytime soon. **MM**

Editor's Note: *The lawsuit between Mark Bogart and Kaiser Permanente was recently settled. Bogart and his firm agreed not to charge royalties to Kaiser Permanente when its affiliated hospitals and HMOs conduct the triple-marker screening tests. Kaiser, for its part, abandoned its broader challenge to Bogart's ownership claims and agreed to drop the case.*

Seth Shulman has written for Technology Review, Smithsonian, and The Atlantic Monthly. His book "Owning the Future" (Houghton Mifflin, 1999) chronicles problems in high-tech fields caused by the growing number of intractable disputes over intellectual property. This article first appeared in the March 1998 Massachusetts Institute of Technology Alumni Association Technology Review. © 1998, Seth Shulman.

For more on medical patents, see "Patents Pending: The Challenges of Bringing an Invention to Market," page 29.

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Two M.D.s who made the leap from the exam room to the boardroom discuss the ups and downs of entrepreneurship.

Cashing In on Their Options

When Robert Hoerr and Dan Cohen were medical school students, both had the same dream: to help people deal with illness. Today, neither sees any patients, yet both men have a major impact on people's health. Both are proud to list M.D. behind their name, but most of their colleagues know them by a different acronym—CEO.

Cohen is chair and CEO of CNS Inc., a Bloomington, Minnesota-based firm that develops health-related consumer products, most notably Breathe Right® nasal strips. Hoerr is president and CEO of GalaGen Inc., an Arden Hills, Minnesota, company that manufactures nutraceuticals (foods supplemented to make them more healthful) and disease-fighting antibodies from cow colostrum.

So how did these two physicians become leaders of multimillion-dollar companies? And what advice do they offer others who may dream of pursuing an entrepreneurial career?

By Ralph C. Heussner Jr.

The Intersection of Medicine and Business

For Cohen, the detour from clinical practice to medical entrepreneurship came toward the end of his residency program in neurology at the University of Minnesota. The idea that spawned a career change came to him while he was observing in the operating room. Patients undergoing high-risk procedures, such as open-heart surgery, were placed on heart bypass and sometimes suffered a stroke. "Another resident and I had a vision of a brain-wave monitor that could monitor brain function during surgery, detecting a problem and reversing it before the patient [was harmed]," he says.

While still in his 20s, Cohen founded CNS Inc., raised venture capital, hired engineers, and built the brain-wave monitor, which was clinically tested at Mayo Clinic. "The device worked well," Cohen says. "But when we took it to market, it was a disaster. If we had had the idea 10 years earlier, I think it would have done a lot better. The problem was twofold. Equipment was expensive, and we were coming into the age of cost containment ... hospitals were putting the cap on many capital expenditures. Manufacturers were merging and consolidating. It looked like we wouldn't survive as a small player."

In 1990, Cohen decided to shift the company into consumer health products. "[Developing the brain-wave monitor] was a marvelous learning experience—extremely challenging but at the same time gratifying that I found a way to work through it. There was an awful lot to learn that they didn't teach in medical school."

About a year later, a Minneapolis inventor named Bruce Johnson approached CNS for help in testing his idea for an adhesive strip that would fit across the bridge of the nose and help relieve congestion. It was a per-

fect match. At the time, CNS was developing sleep diagnostic equipment. Johnson had conceived his invention because his deviated septum made sleeping difficult for him.

In January 1992, CNS signed an agreement with Johnson for the exclusive worldwide license to the product. Today the strips are worn by thousands of athletes and hundreds of thousands of consumers, and the product helped launch CNS as a major player in the consumer health products industry.

In September 1998, the company introduced BANISH™ personal smoke deodorizer, a natural, water-based mist that eliminates same-day cigarette and cigar smoke odor trapped in clothes and hair. The product is currently being test-marketed in cities across the United States.

Research Scientist to Industry Expert

Fittingly, Robert Hoerr's move from medicine to management occurred in an organic progression. After his internal medicine residency at Indiana University, Hoerr became chief medical resident at Indiana University Medical Center's VA Hospital. To meet the needs of patients with chronic wasting, he began looking for nutritional interventions. Lacking formal training in nutrition, Hoerr left Indiana for the Massachusetts Institute of Technology, where he earned a Ph.D. in nutritional biochemistry and metabolism and supervised a research center. He also ran a small clinical practice, specializing in the nutritional care of morbidly obese patients.

In 1991, Hoerr joined Minneapolis-based Sandoz Nutrition, now a division of Novartis, as vice president for medical and regulatory affairs. Two years later, he moved to GalaGen, a small start-up company, to develop biopharmaceuticals from antibodies in milk. He became CEO

Fostering Medical Innovation

Minnesota's reputation as a leader in medical innovation is well-known. The invention of the cardiac pacemaker spawned Medtronic Inc., and the development of the first artificial heart valve created St. Jude Medical Inc. Today, more than 8,000 medical manufacturers, health care service providers, insurers, wholesalers, and retailers form Minnesota's health care industry, which employs nearly 250,000 people. Business and academic leaders aren't willing to rest on past successes, however. Science and technology change too quickly and competition is too intense.

Both the University of Minnesota and Medical Alley, a not-for-profit trade association, are supporting efforts to encourage medical innovations and entrepreneurship. Medical Alley offers a wide range of services to medical start-up companies. Its staff and business and industry contacts can help in many areas, from government regulation to insurance reimbursement. Medical Alley President Tom Meskan says the organization tries to reach out to physicians and scientists who might have a marketable product, helping them deal with FDA regulations, legal issues, and product liability and financial questions.

Meskan notes that Minnesota continues to be fertile ground for medical technology development, thanks to three factors: good health education and research facilities; a good business infrastructure; and a "climate of entrepreneurship" that includes availability of venture capital.

In 1997, the University of Minnesota's Academic Health Center established the Research Services Organization

"I think physicians who communicate well with patients can communicate equally well with consumers."



Robert Hoerr, M.D.

"There was an awful lot to learn that they didn't teach in medical school."



Dan Cohen, M.D.

in 1994. After several years of trying to develop new drugs, GalaGen switched to the food business, focusing on "nutraceuticals," or "functional foods" that offer health-promoting benefits. GalaGen's first nutraceutical, introduced in December 1998, was a variation on kefir, a beverage that resembles a cross between buttermilk and yogurt. Earlier this year, the company began developing nutritious fruit juice beverages in conjunction with Tropicana Products, a division of PepsiCo Inc.

Hoerr and Cohen are well-known in Minnesota's biomedical business community. Hoerr is president of the Minnesota Biotechnology Association, and the Breathe Right® success story has resulted in many marketing awards and national media attention for Cohen and CNS Inc.

We asked these two entrepreneurs to reflect on their experience in the boardroom of business.

How did you deal with the possibility or risk of failure?

Cohen: That wasn't a factor for me. I didn't hesitate, because I wasn't walking away from a clinical practice or a lifestyle. I was 29 or 30 years old. If it didn't work out after a few

years, I could go back into medicine. In my view, what it may have cost me in time would have been offset by a good learning experience.

What expertise does a physician bring to a health care company?

Hoerr: The M.D. certainly adds credibility, particularly on the technical side of discussions. Someone who is working in research development or clinical development is going to be viewed as an expert who can provide important input into business decisions. His or her recommendations regarding a business decision may be tempered by the person's track record or experience—the more experience he has in industry or in a particular organization, the more his credibility will transfer from the technical to the business domain. I think physicians who communicate well with patients can communicate equally well with consumers, and this skill can be a valuable contribution to designing a market research or marketing program, particularly when a technical message needs to be conveyed.

How have businesspeople and industry leaders reacted to you as someone with a medical degree?

Cohen: There's an interesting

bias out there. Generally, physicians aren't considered good businessmen. They are viewed as not having the appropriate training or as having a vantage point that doesn't apply. I have also found a bias in the medical industry itself from people who are used to selling to physicians. They feel that they have to overcome the physician ego.

It's an interesting dynamic to be aware of. I had to show [my business colleagues] that I could listen. It's a very important skill. Understand that when you walk into one discipline and don't know a lot of things, you must acknowledge that to yourself and others.

Hoerr: The major feedback I've heard about M.D.s or Ph.D.s is that they can't think outside the "scientist box." I suspect that comment reflects a tendency on the part of physicians to want to go deep into questions or problems, although M.D.s and Ph.D.s who have worked for a while in industry can be very practical.

Physician comments on marketing questions can be viewed with humor or resistance. I've noted a tendency for physicians to underestimate the complexity of marketing strategy (and I am often guilty of this myself).

Minnesota's reputation as a leader in medical innovation is well-known. The invention of the cardiac pacemaker spawned Medtronic Inc., and the development of the first artificial heart valve created St. Jude Medical. Today, more than 8,000 medical manufacturers, health care service providers, insurers, wholesalers, and retailers form Minnesota's health care industry, which employs nearly 250,000 people. Business and academic leaders aren't willing to rest on past successes, however. Science and technology change too quickly and competition is too intense.

What is the greatest challenge of being an M.D. in the business world?

Hoerr: My greatest challenge is patience and working with others whose style or pace is different from my own. Even though decisions can be made quickly in the business world, progress is usually tied to many factors beyond one's immediate control, both within and outside your organization. Right now, for example, my team is involved in negotiations at various stages on several different fronts, with various outside organizations. Each of these organizations has its own needs, which aren't necessarily fully aligned with ours. It is tempting to push for speedy resolution, but that may produce a less desirable outcome.

What advice can you offer aspiring physician entrepreneurs?

Cohen: It's important to acknowledge that you don't know what you don't know. Physicians might say, "OK, I'm smart, I can figure this out." They often approach problems with a "can-do" attitude—they figure they can work through the problems instead of going out and hiring top-notch talent. You waste time trying to reinvent the wheel.

How has the business climate

changed since you started your company?

Cohen: On the one hand, it might be harder today to go out and start a business based on an idea than when I did it in 1982. I think it may have been easier to raise money then. Today, investors see short horizons. If it takes five to eight years to turn a profit, then why not put money into mutual funds and get better returns with less risk? On the other hand, medical school graduates are smart people who offer value in certain industries.

Would you make the same decision if you had to do it over again?

Cohen: I'm very gratified. I would do it again.

Hoerr: I have enjoyed a life full of surprises and different turns in the road. I am often drawn back to the clinical setting, but it is very, very tough to keep that side active.

Medical colleagues often ask Cohen and Hoerr about their non-traditional career paths. Some question out of curiosity, others out of envy. In response, Cohen and Hoerr say they have found the journey from the exam room to the boardroom rewarding and challenging. **MM**

(RSO) to help academicians as well as people in the private sector pursue ideas that could result in new products. In addition to helping university researchers conduct clinical trials, RSO provides businesspeople with access to scientists, technology, and other resources on campus.

"Our mission is to be highly visible and indispensable to industry partners and nearly invisible yet indispensable to university researchers," says RSO Director Mark Paller, M.D., a professor in the Department of Medicine who has done his own share of research, in nephrology. "We want to remove the obstacles so the scientists can be creative."

RSO helps researchers work through procedural processes required by the FDA or NIH, gain approval from human subjects committees, and compile an accurate database. RSO currently assists 40 clinical trials, and another dozen are expected to be under way before the end of the year.

"As a land-grant university, part of our mission is to make sure that the state of Minnesota has access to the expertise of the university," Paller says. "The university has a lot to offer biotechnology and pharmaceutical companies."

One of RSO's successes has been to help recruit patients for clinical trials. The organization has helped university researchers achieve patient recruitment goals in several arthritis and cancer studies. ■

A First Step toward Collective Bargaining

*AMA delegates made history in June by voting
to sponsor a national labor organization,
but the action won't directly affect most physicians.*

Patricia L. Franklin, J.D., and Christina F. Rich, J.D.

IN A HISTORIC MOVE, members of the American Medical Association House of Delegates voted during its annual meeting in June to form a national labor organization. The action will allow eligible physicians to advocate more effectively on behalf of their patients, according to Randolph D. Smoak Jr., M.D., chair of the AMA Board of Trustees.

"This will not be a traditional labor union," Smoak said. "Doctors will not strike or endanger patient care. We will follow the principles of medical ethics every step of the way. ... Our objective here is to give America's physicians the leverage they now lack to guarantee that patient care is not compromised or neglected for the sake of profits."

In April, the AMA Board of Trustees had issued a 71-page report analyzing the issues involved in forming a collective bargaining unit as an AMA advocacy tool. The board recommended against forming a union, concluding that it would not be able to represent the broadest spectrum of America's physicians in dealing with third-party payers. Nonetheless, at the Annual Meeting in June, following a lengthy debate, the House of Delegates adopted Substitute Resolution 901, which authorized the immediate formation of a national labor organization, among other actions (see sidebar). MMA delegates to the AMA did not take a formal position on the vote as a delegation. Although the delegates expressed deep frustration about some aspects of the current health

care system, they also raised concerns about the impact of this decision on the medical profession.

An AMA-sponsored labor organization will not provide a solution for all physicians experiencing difficulty with managed care organizations and other payers. Association leaders estimate that about 17 percent of the nation's physicians could participate in the labor organization. But more than half of the doctors in the United States would not be eligible to join because they are self-employed and thus barred from collective bargaining by federal antitrust laws.

Physicians have already tested this issue in court. For example, in 1997, the United Food and Commercial Workers Local 56 AFL-CIO filed a petition with the National Labor Relations Board (NLRB) to represent 650 physicians, in solo and group practices, who had contracted with AmeriHealth to provide services to the HMO's members. In this case, the physicians argued that AmeriHealth exerted so much control over their services that they were virtually employees of AmeriHealth. In May 1999, the NLRB ruled that these physicians were independent contractors rather than employees. As such, they could not collectively negotiate with AmeriHealth through a labor organization.¹

Thus, while a self-employed physician may be able to join a union, the union could not represent that physician in collective bargaining with payers. Although self-employed physicians currently have very few options with regard to collective bargaining, that may change

SUBSTITUTE RESOLUTION 901

The AMA's resolution on creating a national labor organization includes the following provisions:

- A directive that all AMA activities regarding physician negotiation maintain the highest level of professionalism and be consistent with principles of medical ethics and the current opinions of the Council on Ethical and Judicial Affairs.

- Approval for the creation of a national labor organization under the National Labor Relations Act as an option for employed physicians and resident and fellow physicians who are authorized under state laws to bargain collectively.

- Continued support for the development of independent house staff organizations for resident and fellow physicians. (Independent house staff organizations are not labor organizations under the National Labor Relations Act.)

- A resolution that the AMA be prepared to implement a national labor organization if the National Labor Relations Board determines that resident and fellow physicians are authorized to collectively bargain under the National Labor Relations Act.

- Continued vigorous support for antitrust relief for

physicians and medical groups, including active support of federal legislation consistent with the Quality Health Care Coalition Act of 1999 and cooperation with the Department of Justice to continue providing model legislation and information on the state action doctrine to state medical associations and members.

- A directive that the AMA be prepared to implement a national organization to support local negotiating units as an option for self-employed physicians and medical groups if the Quality Health Care Coalition Act of 1999 or similar legislation is enacted.

- Continued expansion of the AMA's private-sector advocacy programs, including initiating litigation, stopping egregious health plan practices, and helping physicians level the playing field with health care payees.

- If the Board of Trustees determines that the Quality Health Care Coalition Act of 1999 or similar legislation will not become law, the AMA will pursue new antitrust legislation to achieve the same goal.

- An extensive education program aimed at members and nonmember physicians about the possible limit on benefits and risks of forming a national labor organization.

AMA editorial ➡



soon. In the most recent session of Congress, Rep. Tom Campbell (R-Calif.) introduced the Quality Health Care Coalition Act of 1999. The Campbell bill amends antitrust law to provide that health care professionals engaged in contract negotiations with a health plan be treated as bargaining units under the National Labor Relations Act. In other words, health care professionals would be treated as employees and not as managers, supervisors, employers, or independent contractors.

The AMA, the MMA, and many other physician organizations are supporting the Campbell bill. The Health Insurance Association of America, however, vigorously opposes it, predicting that health insurance premium rates will increase 6 percent to 11 percent annually if the bill passes. Another potential source of relief may come through the enactment of the so-called state action doctrine. Under this doctrine, physicians' collective negotiation with payers could be exempt from antitrust scrutiny if it meets a two-part test. First, the

conduct must be consistent with a clearly articulated and affirmatively expressed state policy. The conduct must also be subject to state supervision. The state action doctrine is sometimes used, for example, in joint negotiations for utilities such as electrical services.

The AMA has prepared model legislative language for using the state action doctrine. Some states have also passed state action exemption statutes, which are generally controversial because of concerns about their possible anticompetitive effect. For this reason, supervision by the state attorney general or another qualified official is essential to ensure that the benefits of the joint negotiation outweigh any disadvantages.

Given the debate that took place before the vote on Substitute Resolution 901, it is clear that collective

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Loud Message



The AMA delegates' decision to form a labor organization is an indication of the problems physicians and patients have with the health care system.

THE DECISION BY AMA delegates in June to create a national labor organization for physicians was—excuse the expression—a striking but not particularly surprising turn of events. It is the logical result of what has happened over the past quarter century to American medicine.

The practice reality for physicians is increasingly to be regimented, to have their work reduced to a commodity, and their pay, productivity—even their decisions—dictated to them. It is the classic mix from which unions arise, even if physicians are seen as unlikely candidates to pin on a union button.

Yet physicians are only part of the story. The pressures on them are felt profoundly by their patients. If patients are lucky enough to have coverage at all, they have to seriously wonder these days if their health plan is allowing them to receive the best treatment available.

The AMA vote says physicians have had it with the way they and their patients are being treated and that they believe the future will be worse. It also reflects the belief that fighting the trend still can be done in the context of adherence to medical ethics—no strikes or other actions that would endanger patients. In doing so, the AMA has set a standard by which it and other physician labor organizations will and should be judged.

It would be difficult to overstate the symbolic significance of the vote, but any discussion of the issue requires an accompanying reality check on its immediate practical impact. In the eyes of federal labor and antitrust law, all this new organization—or any other physician union—can do is represent the 108,000 post-resident physicians who are salaried employees (among more than 620,000 doctors directly involved in patient care) as well as residents in the states where collective bargaining for residents is allowed. More than 40,000 physicians are already in unions.

Employed doctors face real problems on the job. Under the law, a labor organization will help them by requiring good-faith negotiations on the part of

employers and safety from retaliation. The AMA's group, which will operate as an affiliate of the association, is gearing up to serve physicians who need and seek its help.

But who is not covered by the labor organization is the bigger part of the story: Self-employed physicians, along with their patients, are faced with the dictates of health plan contracts. Because these physicians are self-employed, they cannot now negotiate collectively.

Relief in that vital area was the focus of proceedings in a House Judiciary Committee hearing, held coincidentally on the day before the AMA house vote. There the AMA spoke strongly in favor of the Quality Health Care Coalition Act of 1999, introduced by Rep. Tom Campbell (R-Calif.). The Campbell bill would reform federal antitrust law to allow self-employed physicians to join together to negotiate with health plans.

Shortly before that hearing, Texas enacted a bill that would let the state sanction negotiations between independent physicians and health plans. Such laws—preferable by far on the federal level via the Campbell bill but also welcome from states—are the missing element to provide a counterweight to the power of multibillion-dollar health plans.

The Campbell bill, however, faces significant opposition. Both the Justice Department and the Federal Trade Commission oppose it, and, of course, so does the powerful health plan industry. It's not known if the bill will even come up for a vote this year.

But if health plans are enjoying the obstacles facing physician collective negotiation, they shouldn't feel too cocky. Powerful and entrenched institutions meet their match when they come to be commonly recognized as unjust. The AMA's decision to form a labor organization should be taken as a loud message about the big problems patients and physicians have with what's going on in health care.

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Patent Pending

The Challenges of Bringing an Invention to Market

There are several routes for taking a medical innovation through the process of patenting and commercialization—none without risks.

Philip M. Goldman, J.D.

The intersection of medicine and business is hotter than ever, as medical innovations multiply faster than fruit flies. Physicians with an inventive bent face a number of complex issues if they intend to patent their creations. This article discusses recent developments affecting the patentability and commercialization of medical innovations.

Patentability

One such development is a legislative change that affects the patenting of “pure” medical and surgical methods in the United States. In general, a pure method does not use a new chemical compound (e.g., a drug) or a device (e.g., a surgical instrument). Rather, the method uses common equipment and materials and can be performed by a medical specialist simply by learning the steps of the process.

Patents on processes and methods are widely issued and accepted in all areas of industry and technology. An estimated several hundred medical procedure patents are granted each year. A prime example is the surgical method protected by U.S. Patent No. 5,080,111, which was issued in 1992 to Samuel Pallin, M.D., an eye surgeon in Arizona. This method, a sutureless incision used in cataract removal, involves only two steps—obtaining a suitable instrument, such as a scalpel, and using it to make an incision with a particular shape at a certain position in the eye

tissue. After receiving the patent, Pallin brought an infringement action against Jack Singer, M.D., an eye surgeon at the Hitchcock Clinic at Dartmouth Medical College in New Hampshire who was also using the procedure and had written about it in medical journals. After a long and costly legal battle, the case was decided in Singer’s favor because Singer was able to prove that he and other surgeons had performed the procedure before Pallin applied for his patent.

Partly because of the Pallin case, the subject of medical procedure patents came up for debate in the United States in the mid-1990s. As a result, provisions were added to the patent laws, allowing procedure patents to continue to be issued and, at least theoretically, enforced, while giving medical personnel and institutions immunity from infringement actions. It is unclear, however, whether a company that teaches the medical community to perform a particular method could be considered an infringer of this type of patent.

Consequently, whether a medical innovation can or should be marketed in the United States partly depends on whether it is a “pure” method. While patent protection might be available for such methods, its effective value might be minimal.

Commercialization

The inventive physician has at least three routes for reaping the commer-

cial benefits of an innovation—assuming he decides against publishing the innovation and dedicating it to the public. One option is to cast his lot with his employer, such as a university, hospital, or other professional affiliation. The employer can develop, commercialize, and/or license the innovation. The physician may see his creation make it to market and may even collect some consulting or royalty income. Some of the royalty money may also flow back to the physician’s project or department.

If the physician is not required to turn over his innovation to his employer—an important fact to establish early in the process—he has two other options. One is the do-it-yourself route, which involves creating a legal entity to develop and market the innovation; the other requires teaming up with a commercial partner and “licensing out” the creation.

The do-it-yourself route is commonly assumed to lead to greater riches, but that is by no means a certainty. Consider whether you would rather put in the time and effort necessary to reap 100 percent of the profits in what may become a \$1 million-per-year product or sit back and cash a quarterly check for a 5 percent royalty on what others have built into a product that generates 10 times as much a year in revenues. What is certain is that the do-it-yourself route requires substantial time and resources. And neither route is without risks or costs.

Do-It-Yourself Medical Marketing

Marketing the patented (or patent-pending) product typically requires balancing patent protection, costs, and potential benefits with everything else that is involved in launching a commercial venture. Although the patent is intended to provide a limited monopoly on the invention, that monopoly is far from guaranteed. Nor does the patent predict or ensure success—two-thirds of U.S. patents are effectively “abandoned” by their owners before the end of the patent’s 20-year term.

The patent process—including preparation, filing, prosecution, and enforcement—is lengthy and expensive. The investment required to enforce the patent can quickly dwarf the investment needed to develop and commercialize the product. A ballpark estimate for pursuing a patent for a single invention can easily reach \$100,000 over the patent’s 20-year term. A typical patent infringement lawsuit these days can cost \$1 million per side. Patent protection insurance is available but of questionable worth.

Marketing your innovation on your own is the business equivalent of planning your own wedding. It may look perfectly doable up front and from far in advance, but by the time you are fully into it, you realize that it can consume your every waking moment and ounce of energy. For the typical medical invention, this route requires dealing not only with the development, scale-up, and manufacture of the product, but also with marketing issues such as advertising, order fulfillment, quality control, shipping, and customer service. With medical inventions, there is often the added burden of regulatory law and product liability issues.

If you market your innovation yourself, having a patent may keep imitators and competitors at bay or make the product package more palatable to an acquiring company. In the meantime, the patent may be a luxury that adds little value.

‘License-It-Out’ Medical Marketing

Many physicians decide that the best way to commercialize their product is to work with a corporate partner.

From the physician’s perspective, the licensing route can offer the best of both worlds—the product can continue on its cumbersome and expensive drive to commercialization at somebody else’s expense, and if it becomes successful, the doctor-inventor will reap at least some of the benefit.

The difference between “licensing out” rights to an invention and selling those rights, as by “assignment,” is similar to the distinction between leasing a car and buying one. With a car lease, the car dealer retains ownership of the vehicle, while the driver has most of the rights of possession, including driving and repairing the car. Similarly, with a patent license, the licensor (i.e., the physician) retains ownership rights to the invention; by written agreement, the licensor permits one or more other parties (the licensee companies) to use those rights, so long as the licensees live up to various obligations, such as marketing the product and paying royalties. Creating an effective license agreement can itself mean the difference between success and failure for the inventor.

Inventing 101

Most physicians probably believe they have, at one time or another, come up with a new or improved method of accomplishing some medical task. Here are some basic principles that apply to protecting and commercializing medical inventions.

- *The idea must be patentable.* The idea must be suited for protection by a patent rather than a trademark or copyright. Patents are best used for the protection of ideas that relate to new and useful “things,” to methods of making things, to methods of doing or using things, and to improved varieties of old things. Trademarks protect the name, symbol, or manner used to identify such things,

and copyrights are used to protect the expression of ideas, rather than the ideas themselves.

- *The idea must be “new, useful, and unobvious.”* If the new idea does lend itself to patent protection, the inventor can file and then “prosecute” a patent application through the U.S. Patent and Trademark Office. To be issued a patent, an invention must meet a tripartite requirement that the idea be new, useful, and unobvious. During the patent prosecution process, the inventor and his attorney will negotiate (generally in writing) with a patent examiner to convince the officer that the invention meets this requirement.

- *Ownership issues must be resolved.* Inventors often have preex-

isting (and perhaps forgotten) obligations to assign their rights in new inventions to their employer, practice group, or even entities that provided funding for the work. It is important to clarify those rights and, if necessary, request a “release” of rights from the employer. Once the inventor has established that he owns the rights, he can transfer them to others by assigning or licensing the patent rights. In many respects, the differences between assigning and licensing a patent or invention are akin to the differences between selling (assigning) and leasing (licensing) a car.

—From “The Inventive Physician” by Philip M. Goldman, J.D., Minnesota Medicine, July 1994.

The first step on this path is to identify the right potential partners and establish trust and confidentiality. Few medical companies are eager to embrace ideas from outside, and the process can be time-consuming and expensive for the physician. Often, it is difficult to find even a single willing licensee. Although physicians usually have an initial advantage over the garden-variety inventor, this advantage may amount to little more than a foot in the door.

Another important issue is choosing the right time to license. The common wisdom holds that before companies will consider licensing a new invention, the patent should be actually granted and issued (not just applied for). This position is both unfortunate and unnecessary, since the period following the initial filing of a patent application may be the best time to identify, contact, and negotiate with potential licensees. Specific information about the invention is still likely to be secret, the patent claims are in flux, and expenditures are still relatively low. Rights under a pending application are just as transferable—and often equally valuable—as those arising under an issued patent.

It is also wise to consider how patent rights can be assigned to best exploit their value. For example, would a series of nonexclusive licenses be more valuable and manageable than a single, exclusive one? Similarly, consider whether a product or process may be sold in more than one field and in multiple countries.

The financial components of a patent license can include lump-sum payments and "earned" royalties, based on actual sales, as well as minimum royalties, typically used to maintain exclusivity and ensure at least a minimal level of effort and commitment on behalf of the licensee. A number of methods are used for determining a reasonable royalty rate.

The value a physician derives from a patented technology can also take nonmonetary forms. These include equity positions, research and development funding, consulting arrangements, and "grant-backs" (rights to improvements generated by the commercial partner), all of which should

be documented.

The inventive physician encounters many choices and risks in deciding how to move a new product or process to market. No particular path is guaranteed to succeed or to provide greater benefits than another. Perhaps the best approach is to con-

sult professionals who have been through the process. MM

Philip Goldman is an attorney with Fredrikson & Byron, P.A., in Minneapolis. He wrote "The Inventive Physician" for Minnesota Medicine in 1994.

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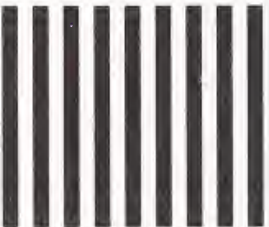


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ANNOUNCEMENTS



Officer Nominations Are Still Open

Elections for MMA officers will be held at the 146th MMA Annual Meeting, September 26–28, at Madden's Resort in Brainerd.

Nominees are:

President-elect:

Blanton Bessinger, M.D.

Vice President:

Kevin Fleming, M.D.

Secretary:

David L. Estrin, M.D.

Treasurer:

*Noel Peterson, M.D.

Speaker of the House:

Gary Hanovich, M.D.

Vice Speaker of the House:

Rebecca Jean Hafner, M.D.

Robert Milligan, M.D.

AMA Delegates:

*Andrew J. K. Smith, M.D.

Lyle Munneke, M.D.

Thomas L. Peyla, M.D.

Alternate Delegates:

*Sally J. Trippel, M.D.

Benjamin H. Whitten,
M.D.

Nominations will remain open through the first session of the House of Delegates.

*Candidates for reelection.

Delegates Will Set Policy at the MMA Annual Meeting

Delegates convening in Brainerd September 26 for the Minnesota Medical Association Annual Meeting can look forward to several days of spirited debate on more than 54 resolutions. Delegates will vote on resolutions on a wide array of issues that promise to help improve the health care of all Minnesotans.

Managed Care

Physicians' frustration about patient care restrictions imposed by managed care contracts is evident in several resolutions.

A resolution asking the MMA to introduce legislation that would prohibit health plans from making unilateral changes to contract terms is certain to cause some debate. One resolution calls on the MMA to design and implement a system that would track the administrative burdens related to managed care. Another resolution asks the MMA to review all managed care contracts and evaluate their provisions for the continuity of patient care and the provisions for physician reimbursement if any contract is terminated.

Violence

Reflecting concern over recent acts of violence committed in schools and communities, one resolution asks the MMA to convene a forum to discuss ways to expand violence prevention training for physicians, residents and medical students. Another resolution calls on the MMA to develop a physician educational program on sexual abuse as part

of the MMA's "Stop the Violence" campaign. Another resolution asks the MMA to convene a conference on children, guns, and media violence.

Yet another resolution asks the MMA to once again introduce legislation to increase the severity of charges for domestic violence in the presence of a child. Minnesota legislators last session, in response to an MMA resolution, did adopt a provision in MMA-drafted legislation that expands the definition of child neglect and abuse to include the act of allowing a child to witness domestic abuse. However, the proposed increase in penalty for the person who commits domestic assault in the presence or hearing of a child did not pass.

Emergency Preparedness

Two resolutions deal with the community's ability to respond to public health emergencies. One calls for the MMA to study the emergency preparedness of the health care system in the metropolitan area and organize a conference on the issue. Another asks the MMA to work with the Minnesota Department of Health to determine how to improve hospital bed reporting to ensure that in the event of a public health emergency, an adequate number of hospital beds will be available. An MMA task force recently reported on metropolitan hospital bed capacity and found there are fewer beds per resident in the Twin Cities area than in other Midwest cities. See the report on the MMA Web site at www.mnmed.org/np.

MMA cont. on page 40

VIEWPOINT

Judith F. Shank, M.D.
MMA President



Minnesota Physicians Need to Stick Together

During my term as Minnesota Medical Association president, I had the opportunity to travel throughout the state and speak with many of you. In my last column, I'd like to share some of my observations.

First, we physicians have far more in common than we have differences. It is critical that we stick together and support one another so we can continue to take care of our patients and provide for our professional needs. As active MMA members, we have the best chance to influence legislation and policies that affect health care.

Our power comes partly from the size of our membership. The MMA can accurately claim to represent most of the physicians in Minnesota. If physicians don't support our association, eventually our ability to influence decision making will be eroded.

In a way, the MMA is in the same situation as the public radio stations that mount weeklong fundraising drives to tell their audiences that they really ought to join if they enjoy the benefits of being a listener. All Minnesota physicians receive many of the benefits of MMA mem-

bership whether they join or not. As a result of MMA advocacy, they no longer have to pay the \$400 surcharge on their medical license, nor do they have to pay the sick tax on medical examinations given for utilization review, insurance claims, or eligibility, litigation, and employment.

With our different employment situations, practice locations, and specialties, it's not surprising that MMA members sometimes disagree. When we do, it's important to be respectful and give our colleagues the benefit of the doubt. I've heard physicians say that of course the MMA takes that position—Dr. X practices at a certain clinic, or is in a certain specialty. They assume that the parochial interests of some MMA officers or board members take precedence over their concern for the House of Medicine in Minnesota. It is not always easy to put aside individual motives and consider the welfare of our profession as a whole, but I think that working together we do so very successfully.

We will never all agree. But we can state our own opinions forcefully and clearly and respect the views of others.

The MMA is a very democratic organization. It is easy for MMA members to join a committee or become a delegate to the MMA House of Delegates. Members can also express their opinions to their representative on the Board of Trustees and to MMA officers. This is one of our great strengths. It is extremely important that we continue to be responsive to the wishes and opinions of our members. At the same time, however, MMA leaders should not be afraid to lead and to speak out on issues that affect patients and physicians.

And finally, if we are to provide for the future of our profession, we should nurture medical students and younger physicians, not only by helping them develop practice skills and balance the demands of their career and family, but also by encouraging them to become involved in organized medicine.

We have a great responsibility to one another. We must not be divided by geographical location or specialty society if we are to have influence in our communities and in the Legislature. Unity is critical. ■

MMA Presents End-of-Life Training

Physicians attending the MMA Annual Meeting at Madden's Resort in Brainerd, Minnesota, September 26–28, will learn how to provide quality care for patients who are dying. Rebecca Jean Hafner, M.D., MMA vice president and chair of the Committee on Ethics and Medical-Legal Affairs, and Mark Leenay, M.D., Minnesota Medical Directors Association president-elect, will share information on palliative care, symptom management, ethical decision-making, and psychosocial issues at a special training session 2–5:30 p.m., September 26.

Hafner is a family physician and medical director at Saint John's Abbey and University in Collegeville, Minnesota. She received her training as part of the Education for Physicians on End-of-Life Care project, also called the EPEC project, initiated by the American Medical Association and the Robert Wood Johnson Foundation. This year she

has been working with the MMA to convene a series of one-day seminars in cities across Minnesota.

Leenay is a family physician, geriatrician, and Fairview Health System director of palliative medicine.

At the seminar, physicians will receive an overview of how to deliver the news of a life-threatening diagnosis, conduct a basic patient assessment in end-of-life care, manage imminent dying and bereavement, handle prognostic uncertainty, and respond to requests for physician-assisted suicide.

The MMA designates this educational activity for a maximum of three hours in category 1 credit toward the AMA Physician's Recognition Award.

The seminar is presented at no charge to MMA members, but space is limited. To register, call Vicki Westling at 612/362-3764 or 800/DIAL MMA (800/342-5662), or e-mail vwestling@mnmed.org. ■

BMP Calls for Additional Meetings on Fee Increase

The Board of Medical Practice (BMP) has scheduled two additional informational meetings on the proposed physician license fee increase from the current \$168 to \$192. The first meeting on the subject was held in July.

The meetings will be from 4:30 to 6:30 p.m., September 15 and 16, in the Mississippi Room at the Minnesota Department of Health Office, 1645 Energy Park Drive, St. Paul.

BMP staff will present the reasons for the proposed fee increase and allow time for questions. The MMA encourages physicians to

attend one of these meetings.

The BMP is required to hold a hearing before an administrative law judge on the rate increase. After these informational meetings, however, those who requested the hearing may withdraw their request. If fewer than 25 people request a hearing, the BMP is not obligated to hold it.

For further information, call Christina Rich, MMA associate counsel, 612/378-1875 or 800/DIAL MMA (800/342-5662). ■

Call to Obtain Advanced Health Care Directive

As a resource for Minnesota physicians and their patients, new advanced health care directive material is available from the Minnesota Medical Association. An advanced health care directive is a document used to guide the health care decisions of families and health care providers when an individual is unable to make decisions about, or to communicate, health care wishes.

In 1998, after Minnesota law was changed to make it easier for Minnesotans to complete an advanced health care directive, the MMA House of Delegates asked the MMA to disseminate to physicians educational material about the new advanced health care directive law.

The MMA Committee on Ethics and Medical-Legal Affairs reviewed advanced health care directives materials developed by the University of Minnesota's Extension Service, and the MMA Board of Trustees approved the distribution of these materials.

The materials include a form that an individual may use to appoint one or more people to make health care decisions if the individual is unable to do so. A worksheet is provided to help individuals put their health care preferences and values in writing.

You are encouraged to reproduce the materials and make them available to your patients. Call the MMA legal department, 612/378-1875 or 800/DIAL MMA (800/342-5662), or visit the MMA Web site at <http://www.mnmed.org>. ■

1999 Resolution Summary

The 1999 MMA House of Delegates will convene at Madden's Resort in Brainerd on September 27 and 28 to take action on resolutions that will set the MMA's course for the coming year. When *News & Views* went to press, the following resolutions had been submitted:

Res. 100, Educating Physicians about Sexual Abuse

Introduced by the Hennepin Medical Society

Resolves that the MMA, as a part of its "Stop the Violence" campaign, develop a physician educational program regarding sexual abuse and its consequences.

Res. 101, Sponsorship of Forum for Enhancing the Training of Medical Students and Residents in Violence and Abuse Issues

Introduced by the Hennepin Medical Society

Resolves that the MMA convene a forum of representatives of the state's medical schools and residency training programs to discuss expanding physicians' training on violence and abuse issues.

Res. 102, MMA Sponsorship of the Minnesota Smoke-Free Coalition

Introduced by the Hennepin Medical Society

Resolves that the MMA remain a sponsoring member of the Minnesota Smoke-Free Coalition as long as the mission of the coalition and the policies of the MMA are in agreement.

Res. 103, Ethnic Data Reporting for Clinical Trials

Introduced by the Ramsey Medical Society

Resolves that the MMA ask the AMA to study the racial and ethnic categories included in the Federal Office of Management and Budget Directive 15 and determine whether expanding these categories would be appropriate.

Res. 104, Provision of Day Care at Major MMA Meetings

Introduced by the Wright Component Medical Society

Resolves that the MMA Board of Trustees consider providing day care at major MMA meetings.

Res. 105, MMA Dues and 2000 MMA Budget

Introduced by the MMA Board of Trustees

Resolves that the MMA member dues for 2000 remain the same as for 1999, and that the MMA adopt the proposed 2000 MMA Operations Budget and the proposed 2000 MMA Capital Budget.

Res. 106, Development of Additional Membership Categories and Dues Structures

Introduced by the MMA Board of Trustees

Resolves that the MMA implement limited "pilot projects" to assess the viability and desirability of adding membership categories and dues structures.

Res. 107, MMA Nominating Committee Membership

Introduced by the MMA Board of Trustees

Resolves that the MMA amend the MMA Bylaws to expand the membership of the Nominating Committee to include the previous three MMA past presidents and the current chair of the MMA delegation to the AMA House of Delegates.

Res. 108, Section Name Change

Introduced by the Resident Physician Section

Resolves that the MMA-Resident Physician Section change its name to MMA-Resident and Fellow Section.

Res. 109, Report of Unification Work Group

Introduced by the Ramsey Medical Society

Resolves that the MMA conduct a survey to determine whether Minnesota physicians prefer to have the option of joining the MMA or a component medical society without joining both. It also calls on the MMA to provide a report to the 2000 House of Delegates that would include the survey results, the history of unification of membership in Minnesota, a review of recent national membership trends, and recommendations that would continue the strong links between the MMA and component societies, while addressing component society membership issues.

Res. 200, Comprehensive Advanced Life Support (CALS)

Introduced by the Mower Component Medical Society and the Lake Superior Medical Society

Resolves that the MMA encourage medical centers to accept CALS certification as equivalent to recertification for staff privilege purposes in the following programs: Advanced Cardiac Life Support, Advanced Trauma Life Support, Pediatric Advanced Life Support, Advanced Pediatric Life Support, Advanced Life Support-Obstetrics, and Neonatal Resuscitation Program.

Res. 201, Physician Time

Introduced by the Lake Superior Medical Society

Resolves that the MMA encourage physician reimbursement for time spent with health plan representatives concerning prescription substitution and for time spent researching drugs recommended by these plans.

Res. 202, Nursing Shortage – Cause and Alleviation

Introduced by the Zumbro Valley Medical Society

Resolves that the MMA facilitate a study of the causes of the nurse staffing shortage and recommend measures to help alleviate it.

Res. 203, Mandate Legislative Protection for Health Care Providers in Health Plan Contracting Practices

Introduced by the Hennepin Medical Society

Resolves that the MMA introduce legislation that would require health plans to give health care providers fee schedules for the top 100 service codes for the particular practice or specialty and for each health insurance "product" the plan offers, a written summary of the criteria used to determine medical necessity for the top 100 service codes for that particular practice or specialty, a 30-day notice when provider contracts are terminated or not renewed, and a written statement of the reason for the termination. It further calls on the MMA to introduce legislation that would grant health care providers the opportunity to appeal decisions based on quality of care and financial or professional performance and that would prohibit a health plan from: 1) making unilateral changes to contract terms, 2) including "hold harmless" clauses in contracts, and 3) retroactively denying payment for a previously approved treatment.

Res. 204, Revision of Federal and Minnesota State Medical Savings Account Statutes

Introduced by the Hennepin Medical Society and the Ramsey Medical Society

Resolves that the MMA support legislation that would remove certain restrictions on MSAs, and that the MMA seek changes in legislation that would allow use of pretax dollars to fund MSAs whether paid by an employer, an employee, or an individual.

Res. 205, Legislation for Increasing the Severity of Charges for Domestic Violence in the Presence of a Child

Introduced by the Hennepin Medical Society

Resolves that the MMA support legislation to increase the level of criminal offense for domestic vio-

lence when perpetrated in the presence of a child.

Res. 206, Increasing Government Program Rates

Introduced by the Hennepin Medical Society

Resolves that the MMA support changes in state-sponsored government program reimbursement policies to base physicians' and other health care providers' reimbursements on the current, reasonable cost of efficiently providing high-quality health care.

Res. 207, Monitoring the Minnesota Environment and Where Medical Residents Choose to Practice

Introduced by the Hennepin Medical Society

Resolves that the MMA track how many resident physicians have left Minnesota each year and identify any economic factors that could

be modified to keep Minnesota a great place to practice medicine.

Res. 208, Pharmaceutical Costs


Introduced by the Minnesota Academy of Family Physicians and the Hennepin Medical Society

Resolves that the MMA establish forums to seek solutions to the problem of rising pharmaceutical costs, develop policy on how physicians can assist in controlling pharmaceutical costs, encourage using clinical guidelines that promote cost-effective drug prescribing, and encourage primary care research on clinical guidelines and behavioral techniques to promote cost-effective drug prescribing.

Res. 209, FDA Regulation of Dietary Supplements

Introduced by the Ramsey Medical Society

Resolves that the MMA ask the AMA to initiate federal legislation



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to regulate dietary supplements by the Food and Drug Administration (FDA) that would include standardizing all dietary supplements, incorporating toxicity and interaction warnings in dietary supplement labeling, and regulating advertising claims for dietary supplements.

Res. 210, Exclusive Contracts for Drugs and Devices

Introduced by the Ramsey Medical Society

Resolves that the MMA study the exclusive contracts that hospital organizations and health systems have with pharmaceutical manufacturers and medical device manufacturers; develop recommendations and legislation, if needed, to protect patients from potential harm that may result from not having timely access to physician-prescribed drugs or devices; and, if legislation is developed, include in it provisions that state that any liability incurred as a result of such contracts excludes the physician whose orders have been overridden.

Res. 211, Repeal of 1998 Abortion Reporting Laws

Introduced by the Minnesota Section of the American College of Obstetricians and Gynecologists

Resolves that the MMA work to repeal the Minnesota Statute relating to the reporting of abortion procedures and complications.

Res. 212, Direct-to-Consumer Advertising

Introduced by the Stearns-Benton County Medical Society

Resolves that the MMA and the AMA study how the health of patients and the cost of health care are affected by direct-to-consumer advertising.

Res. 213, Continued Specialty Physician Resource in Minnesota

Introduced by the Ramsey Medical Society

Resolves that the MMA survey active and retired Minnesota physicians and senior residents to ascertain the current economic environment for specialty physicians.

Res. 300, Patients' Documentation of Diagnosis and Surgical Procedures

Introduced by the Lake Superior Medical Society

Resolves that the MMA recommend to physicians that the exact diagnosis and surgical procedure from the discharge summary be provided to patients.

Res. 301, Epinephrine Syringe

Introduced by the Lake Superior Medical Society

Resolves that the MMA request that the producers of epinephrine develop and sell a syringe with a fixed needle for one-time, subcutaneous injection, that the syringe be packaged in a small, portable container suitable for emergency use, and that the MMA encourage all Minnesota physicians to carry this syringe.

Res. 302, American Academy of Pediatrics (AAP) Guidelines for Circumcision

Introduced by the Hennepin Medical Society

Resolves that the MMA encourage physicians to study the AAP policy regarding circumcision and to consider following its recommendations.

Res. 303, Medica Choice Health Plan Radiology Reimbursement Policy

Introduced by the Hennepin Medical Society

Resolves that the MMA continue to work for change in the Medica Health Plan policy regarding x-rays taken in a physician's office.

Res. 304, Prominent Ears

Introduced by the Hennepin Medical Society

Resolves that the MMA encourage all Minnesota health plans to provide coverage for children with excessively prominent ears of an identified severity.

Res. 305, Medicare Funding Equity

Introduced by the Hennepin Medical Society

Resolves that the MMA support changes in federal Medicare reimbursement policy so reimbursements are based on the current, reasonable cost of efficiently providing high-quality health care, and use the payment formula that results in comparable benefits in all states.

Res. 306, Improving Health Care Access

Introduced by the Hennepin Medical Society

Resolves that the MMA support public policies that are designed to increase the availability of health care insurance to Minnesotans and to oppose public policies that would increase the number of uninsured Minnesotans.

Res. 307, Risk-Sharing of Pharmaceutical Costs

Introduced by the Minnesota Academy of Family Physicians

Resolves that the MMA develop a policy for equitable risk-sharing of pharmaceutical costs between physicians and health plans.

Res. 308, Yearly Health Insurance Re-contracting

Introduced by the Minnesota Academy of Family Physicians

Resolves that the MMA discourage the practice of yearly health care insurance re-contracting.

Res. 309, MMA Conference on Kids, Guns, and Media Violence

Introduced by the Ramsey Medical Society

Resolves that the MMA convene a "Kids, Guns, and Media Violence" conference; that the conference be a forum for presentation of scientific information and discussion regarding societal, legal, regulatory, and public health policy implications; that the target audience be parents, educators, law enforcement officials, and state government officials; and that Gov. Jesse Ventura be invited to be the keynote speaker.

Res. 310, Appropriate Evaluation and Treatment of Patients with Mental Health Conditions

Introduced by the Ramsey Medical Society

Resolves that the MMA develop legislation to require that managed care health plans and third-party insurance providers pay physicians a reasonable sum for the preparation of any additional prior authorization requests for the treatment of patients with mental health conditions.

Res. 311, Medicare Guidelines for Medication Use Interaction in Long-term Nursing Facilities

Introduced by the Wright Component Medical Society

Resolves that the MMA urge the AMA to work with the Health Care Financing Administration to limit burdensome mandates that interfere with patient care in long-term nursing facilities, and that the MMA ask the Minnesota Department of Health to temper its aggressive "guidelines of interpretation" of these federal regulations.

Res. 312, Cash Basis Managed Care Contracts

Introduced by the Ramsey Medical Society

Resolves that the MMA study the efficacy of requiring that all health care services be reimbursed and negotiated on an actual "cash/reimbursement" basis available to all consumers; study revising state statutes to require managed care contracts to be written on a cash basis; and, if feasible, develop and introduce legislation to require that physicians' managed care contracts use a cash basis as a replacement for negotiated fees.

Res. 313, Noisy Toys

Introduced by the MMA Committee on Women Physicians

Resolves that the MMA support legislation that would decrease the maximum decibel level of toys and electronic devices to levels comparable to or below industrial tolerances, and educate the public on the dangers of noise-induced hearing loss.

Res. 314, Sleepy Driving

Introduced by the MMA Committee on Public Health and Preventive Medicine

Resolves that the MMA and AMA define sleepiness behind the wheel as a major public health issue and develop a public education campaign on the issue.

Res. 315, Drivers Education Regarding Sleepiness

Introduced by the MMA Committee on Public Health and Preventive Medicine

Resolves that the MMA promote incorporating into all Minnesota drivers education classes education on the dangers of driving while sleepy, and that the MMA ask the AMA to encourage all state medical associations to do so in their states.

Res. 316, Sharps Disposal

Introduced by the MMA Committee on Public Health and Preventive Medicine

Resolves that the MMA encourage all health care providers who prescribe or dispense sharps to educate patients regarding proper sharps disposal techniques and that the MMA encourage health care facilities to accept for disposal home-generated sharps.

Res. 400, Implement a Hassle Factor Project Modeled after Existing Programs in Colorado and Texas

Introduced by the Hennepin Medical Society

Resolves that the MMA, as part of its physician advocacy program, design and implement a hassle factor project modeled after the Colorado and Texas Medical Society hassle factor projects.

Res. 401, Tort Liability

Introduced by the Hennepin Medical Society

Resolves that the MMA oppose expansions of tort liability to physicians that would increase health care costs, increase premiums, and/or increase the number of uninsured Minnesotans.

Res. 402, Health Care Standards in U.S. Jails and Prisons

Introduced by the Hennepin Medical Society

Resolves that the MMA ask the AMA to research, evaluate, and update the standards of health care provided in correctional settings, including the standards for identifying appropriate professionals to serve this population.

Res. 403, Options for Physicians and Patients When Doctors Terminate Managed Care Contracts

Introduced by the Hennepin Medical Society

Resolves that the MMA request copies of provider agreements from managed care organization insurers to evaluate provisions for continuity of care (access to and reimbursement for physicians) following termination of provider status; study existing statutory requirements for continuity of care and transition to new providers; and sponsor legislation requiring that a point-of-service option be made available to all patients who choose to see qualified providers out of network or not under contract.

Res. 404, MMA Study of the History of the Treatment of Persons with Developmental Disabilities Who Have Been Involuntarily Committed to State Institutions

Introduced by the Ramsey Medical Society

Resolves that the MMA prepare a report on the history of the treatment of persons with developmental disabilities in state institutions; make a recommendation on issuing a public apology to all developmentally disabled persons if the report indicates that any inappropriate treatment was given to those who were committed to state institutions; and encourage the AMA and the Minnesota Legislature to make similar public apologies, if warranted.



Res. 405, To Address the Public Health and Environmental Impact of Railroads

Introduced by the Zumbro Valley Medical Society

Resolves that the MMA work with the AMA and state and federal legislators to establish some local control of railroad traffic, crossings, and expansions that are expected to harm public safety or environmental quality.

Res. 406, Emergency Preparedness

Introduced by the Ramsey Medical Society

Resolves that the MMA study the metropolitan area health care system's ability to respond to major emergencies; if recommended by the study, organize a conference on metropolitan emergency preparedness; and develop a plan to respond to emergencies.

Res. 407, Liability for the Substitution of Physician Orders for Inpatients

Introduced by the Ramsey Medical Society

Resolves that the MMA study the problem of changes made in physician directives for inpatients and develop recommendations requiring that a timely notice be given to the treating physician prior to initiating any alterations in physician directives, and for establishing the liability for changing physician directives.

Res. 408, Reporting Hospital Bed Capacity to the Minnesota Department of Health

Introduced by the Ramsey Medical Society

Resolves that the MMA work with the Minnesota Department of Health to review the reporting requirements for hospital bed capacity and nursing home capacity and to determine if the reporting requirements can be revised to be more useful, and that the MMA, if necessary, develop legislation to establish a hospital bed reporting system that produces useful data.

Res. 409, Non-compete Clauses

Introduced by the MMA Committee on Women Physicians

Resolves that the MMA oppose non-compete clauses that impede the affected physician's ability to practice a chosen specialty in any community.

Res. 410, Gag Rules

Introduced by the MMA Committee on Women Physicians

Resolves that the MMA oppose "gag rules" that limit discussion and/or criticism of one's practice.

Res. 411, Support of the Physician Leadership on National Drug Policy

Introduced by Lee Beecher, M.D., Delegate

Resolves that the MMA endorse the Consensus Statement of the Physicians Leadership on National Drug Policy and support increased treatment for drug addiction to reduce the supply and demand for drugs and reduce demand for illegal and addicting drugs. ■

MMA cont. from page 33

Pharmaceuticals

Several resolutions will be considered that relate to the drug industry.

A resolution asks that the MMA encourage health plans to reimburse physicians for time spent discussing prescription substitution recommendations with health plan representatives and for time spent researching the recommended substitute drugs.

Concern about the rising costs of pharmaceuticals is addressed in several resolutions. One resolution asks the MMA to seek solutions to rising drug costs. Another asks the MMA to develop a policy that physicians and health plans equitably share pharmaceutical costs. ■

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NEWS DIGEST

*People and places
making medical news*



People & Places

Steve Kolar, M.D., was appointed executive director for **HealthEast Clinics**. Kolar, a 1975 graduate of the **University of Minnesota Medical School** and a board-certified internist, will oversee the clinical, business, and operational aspects of HealthEast Care System's 15 east metro-area primary care clinics. Kolar has been with HealthEast since 1996, first as medical director of clinical system integration and then as chief medical officer for clinical integration.

State Health Commissioner **Jan Malcolm** named **Patricia M. Conley** to head the new policy and communications division at the **Minnesota Department of Health**. Previously, Conley was intergovernmental services manager for the **Association of Minnesota Counties**. In that role she worked on various high-profile issues in health, corrections, welfare reform, and education and was instrumental in the development and passage of welfare reform initiatives in 1994, 1995, and 1997.

Blue Cross and Blue Shield of Minnesota hired **Jodie L. Root** as vice president for provider contracting and payment. Root has an MBA from Loyola University, Chicago, and was most recently the director of network management at **Blue Care Network of Michigan**. At Blue Cross, Root will be responsible for provid-

er contract administration, network design, and clinical and institutional contracting.

Keith Stelter, M.D., was re-elected speaker of the house of delegates of the **Minnesota Academy of Family Physicians**, the state's largest medical specialty organization, with about 2,600 members. Stelter, a family physician from Moose Lake, Minnesota, practices at **Gateway Family Health Clinic** and is medical director of **Cromwell Ambulance Service**.

The **Buyers Health Care Action Group (BHCAG)** named **HealthSystem Minnesota**, **Children's Physician Hospital Organization**, and **St. Croix Valley Healthcare** as recipients of its 1999 Excellence in Quality awards.

HealthSystem Minnesota, which includes **Park Nicollet Clinic** and **Methodist Hospital**, will receive BHCAG's Gold Award and \$100,000, partly in recognition of its successful two-year project to reduce strokes and hemorrhages by managing patients better on anticoagulation therapy. "Creating a centralized clinic better able to manage these drugs helps us save lives, prevent disability, improve service, and reduce costs," said **David Abelson, M.D.**, associate medical director for **HealthSystem Minnesota**.

Children's Physician Hospital

Organization and **St. Croix Valley Healthcare** each will receive \$50,000 and a Silver Award. **Children's** was recognized for care improvements achieved through a telephone triage service staffed by pediatric nurses. **St. Croix Valley Healthcare** was honored for devel-

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oping a program to help physicians better monitor and educate diabetic patients.

BHCAG also awarded "special recognition"

to **HealthEast Care System** and **Access Quality Care System**. HealthEast was commended for significant improvements in asthma diagnosis

and treatment, while Access Quality Care System was recognized for outstanding achievement in preventive care services. ■



Socioeconomics

Health Insurance Costs for State Employees to Rise 23%

Next year the state will see the largest increase in its employee health

insurance costs since the late 1980s. The expected 23 percent increase, to \$230.8 million, is almost twice the 13 percent increase for 1999.

Costlier medications, new technology, and more demand for health care services are mainly responsible for the increase. The shift to self-insurance, which involves some one-time costs, also is a factor. The move to self-insurance was a bid to

help control future costs. "We hope that this stabilizes our costs and allows us to provide the kind of access [to clinics and hospitals] that state employees desire," said **Elizabeth Houlding**, manager of the state's employee insurance division, in the Minneapolis *Star Tribune*.

State workers can choose one of six health plans administered by **HealthPartners**, **Preferred One**, and **Blue Cross and Blue Shield of Minnesota**.

Children's Hospitals and Clinics Plans to Open St. Cloud Clinic

Children's Hospitals and Clinics, which has flagship hospitals in Minneapolis and St. Paul, has signed a deal with **Allina Health System** to establish a pediatric clinic at Allina's new medical campus in the St. Cloud metro area, scheduled for completion in 2001.

Children's had been discussing a merger with the pediatric services department at **Fairview-University Hospital** but has discontinued those talks, according to a *Star Tribune* article. Apparently, Children's feared that relocating to Fairview's Riverside campus would be viewed as a takeover of Children's by Fairview. "We want to be neutral within the [medical] community," Brock Nelson, CEO at Children's, told the *Star Tribune*.

In 1998, Children's had more than 12,000 combined admissions at its hospitals in St. Paul and Min-

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neapolis, which together have 268 beds. Revenue and net income for 1998 were \$216.8 million and \$16.5 million, respectively.

NIH Awards MMRF \$5.7 Million

The Minneapolis Medical Research Foundation (MMRF) has been awarded a five-year, \$5.7 million

contract from the National Institutes of Health to serve as the Coordinating Center for the United States Renal Data System, the most comprehensive database for end stage renal disease (ESRD). The center, led by principal investigator Allan Collins, M.D., reports to the NIH, the Health Care Financing Administration, and Congress the overall incidence, prevalence, and hospitalization rates, transplantation rates, and costs associated with chronic kidney failure.

"We will be creating an atlas of ESRD just like the CDC created an atlas of U.S. mortality," said Collins. Each year there are about 75,000 new cases of end stage renal disease.

The MMRF oversees research at Hennepin County Medical Center in Minneapolis. ■

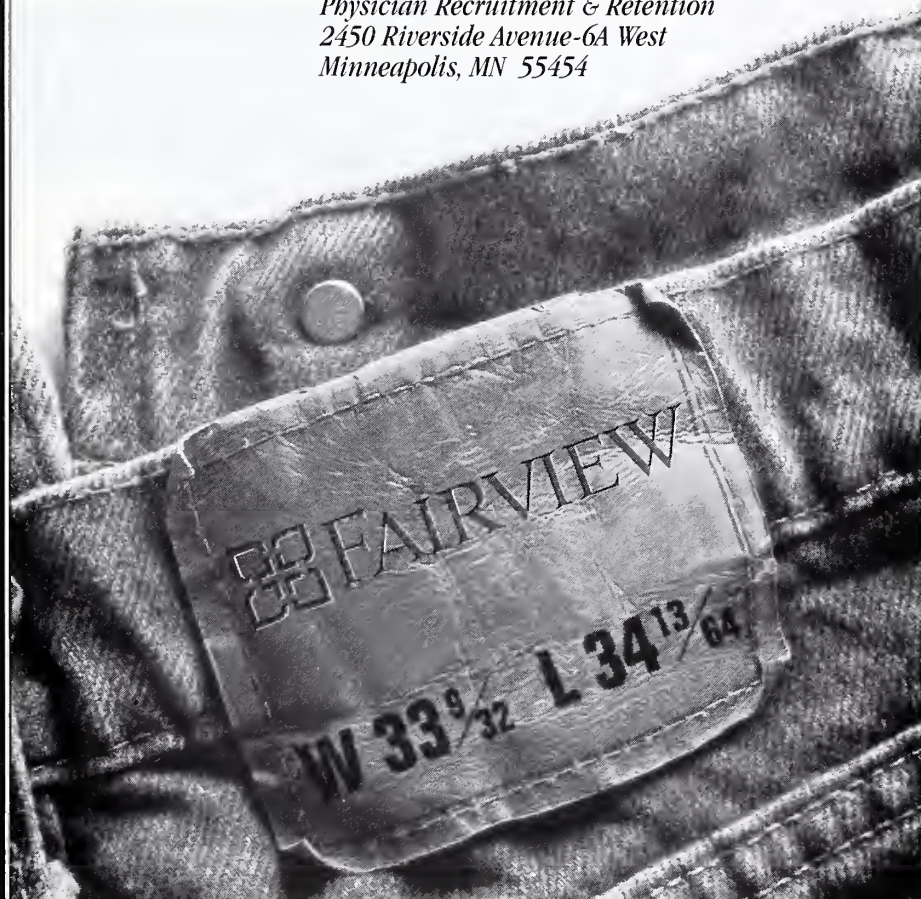
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Research & Innovations

Drug Cuts Heart Attacks and Strokes in Patients with Low HDL

A study by Hanna B. Rubins, M.D., chief of general internal medicine at the Minneapolis Veterans Medical Center, showed that the drug gemfibrozil lowered the rate of fatal heart attacks by 22 percent and cut strokes by 29 percent in patients who lack sufficient high-density lipoprotein (HDL).

The study, published in the August 5 *New England Journal of Medicine*, could lead to greater focus on the patients who have normal low-density lipoprotein (LDL)—but not enough HDL. In the past, attention has mainly focused on decreasing levels of LDL. Patients with normal LDL but low HDL make up about one-fourth of the 12 million to 13 million heart disease sufferers in the United States, Rubins said in a Minneapolis *Star Tribune* article. Rubins, who is also an associate professor at the University of Minnesota, said that she hopes the study will “change the way people think about treating this segment of the population.” She noted that gemfibrozil, which costs about \$24 a month at pharmacies, is not effective for patients with high LDL levels.

HealthPartners Research Foundation Will Join \$16 Million Cancer Study

HealthPartners Research Foundation is one of 10 managed care organizations in the United States that

will participate in a four-year, \$16 million study to increase effective cancer prevention and control efforts. The study, which is funded by the National Cancer Institute and is known as the Cancer Research Network, will focus on identifying patient, treatment, and delivery system factors that may affect health outcomes. The managed care organizations are all members of the HMO Research Network.

The goal of the project is to develop an efficient, high-quality population laboratory by blending large enrollee populations, databases, and research resources. The principal investigator is Cheri Rolnick, Ph.D., M.P.H. Several other HealthPartners Research Foundation researchers are involved, including Leif Solberg, M.D., and Raymond Boyle, Ph.D., who will serve as co-investigators in a smoking cessation project, one of three research projects that have been funded. The second study will assess late-stage breast and cervical cancer occurrence, and the third will determine the efficacy of preventive strategies such as prophylactic mastectomy for women with a personal or family history of breast cancer.

“The Cancer Research Network grant is extremely important in helping define the best care for improving prevention, diagnosis, and treatment of malignant diseases through managed care systems,” said Brian Rank, M.D., HealthPartners’ medical director.

CPR Pump May Help Increase MI Survival Rates, Study Finds

A study of heart attack victims in France has shown that a device co-developed by University of Minnesota cardiologist Keith Lurie, M.D.,

may be able to double the survival rates of patients who receive cardiopulmonary resuscitation.

Only 5 percent of heart attack patients survive a week after receiving traditional CPR. But when paramedics used the “compression-decompression” device, called the CardioPump, the number increased to 10 percent. The yearlong survival rates rose from 2 percent to 5 percent, according to a report in the *New England Journal of Medicine*.

The CardioPump, which is made in Denmark, is not yet available in the United States. Paramedics in St. Paul tested it in the early 1990s, but the study was called off by the U.S. Food and Drug Administration because of controversy over patient consent. Lurie continued studying the pump’s effectiveness with colleagues in France. ■

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Inhalant Abuse

Inhalant abuse is a dangerous and often overlooked problem among adolescents. Physicians can help prevent more serious health problems—and even death—by careful attention to telltale symptoms in their younger patients.

John E. Huxsahl, M.D.

Editor's Note: Inhalant abuse is not uncommon and may be cause for greater concern than experimentation with marijuana in young boys and girls. With inhalants, the side effects for even short-term use can include neurological damage. In addition, like marijuana, inhalants may be gateway drugs to more serious experimentation and drug use. This often-ignored topic is important to include in advice regarding drugs. Whether talking to children, teens, parents, or teachers, physicians should describe the facts and warning signs. Remember, advice from a physician can help steer children and teens away from drugs.

—Barbara P. Yawn, M.D., M.Sc.
Series Editor

Imagine supermarket shelves lined with Saturday Night Specials for sale to anyone for the price of a can of hair spray. As ludicrous as it may seem, that image is not so far from reality. When misused as inhalants, hundreds of everyday products at neighborhood stores—from felt-tip pens to vegetable cooking sprays—have the potential to kill, sometimes on first use.

Prevalence

Since the ancient Greeks, inhalation has been recognized as a highly effective means of ingesting drugs. The extensive capillary surface area of the lungs allows rapid absorption, with a subsequent "rush" that has often been described as second in intensity only to intravenous injection.

Although obtaining accurate prevalence data is difficult, inhalant abuse occurs in both developed and developing countries and is generally thought to be most common among younger people. Its popularity among that group may partly be explained by its low cost, easy access, and ready availability in small, easily concealed containers. Unlike most other psychoactive substances, inhalants can be legally purchased and possessed by minors and may be one of the first psychoactive substances they use. Only marijuana, alcohol, and tobacco

use is more common among those under 18.

In 1979, lifetime prevalence of solvent use was reported to be 9.8% among adolescents aged 12 to 17 years and 16.5% among young adults aged 18 to 25 years; a decade later, it was estimated that nearly 7% of high school seniors had tried inhalants in the preceding year. More recent data, from the National Institute on Drug and Alcohol Abuse's Monitoring the Future study, indicate that by 1996, little had changed—6.7% of 12th-graders in the United States reported inhalant use in the preceding year and 16.6% reported lifetime use.

Sociocultural Factors

Inhalant abusers appear to be more likely than other drug users to be poor, come from broken homes, and do poorly in school. At least two major studies have shown inhalant abusers to have lower Wechsler IQ Verbal scores than age-matched controls who are nonabusers. But which came first, the abuse or the deficits, is unknown.

Disruptive behavior has often been reported for inhalant abusers. The likelihood of violent behavior is unclear, but at least one carefully controlled study has shown only self-directed aggression to occur with greater frequency in this group.

Substances Inhaled

Despite the widespread availability and use of inhalants, "glue sniffing" did not attract national attention until the 1950s. Although this term is still widely used, substances of abuse now also include shoe polishes, gasoline, thinners, solvents, aerosols (paint, cooking, and lubricant sprays; deodorant and hair sprays; electronic cleaners; and others), correction fluids, cleaning fluids, refrigerant gases, anesthetics, whippants (whipped cream propellants), organic nitrites, and even cooking or lighter gas.

Little is known about why specific substances are inhaled, however. Some adolescents have said odor is important, while others have reported that the feeling

Table

Past year use of inhalants by Minnesota students

Grade	%	Total Surveys
6	5.9	52,547
9	6.5	49,048
12	3.2	32,199

Source: Minnesota Student Survey 1998, Minnesota Department of Children, Families and Learning.

induced by inhalation is the most important factor in their choice.

Most inhalants contain many chemicals, such as toluene, hexane, trichloroethylene, butane, propane, fluorocarbons, nitrous oxide, tetrachloroethylene, trichloroethane, acetone, and nitrites. Regardless of their chemical makeup, however, inhalants usually are "sniffed" directly from the container, "huffed" from a rag soaked in the substance and held to the face, or placed in a bag from which the vapors are repeatedly inhaled. In some cases, the substance is sprayed directly into the mouth. Progression from "sniffing" to "huffing" to "bagging" is associated with higher vapor concentrations and may signal increasing misuse of these substances.

Toxicology of Inhalant Abuse

Solvent abuse might best be characterized as a quick "drunk," since many of its symptoms resemble those of alcohol intoxication. Acute ingestion may be associated with several symptoms, including initial excitation, followed by drowsiness, disinhibition, light-headedness, and agitation. With increasing intoxication, individuals may develop ataxia, dizziness, and disorientation. Extreme intoxication may result in sleeplessness, general muscle weakness, dysarthria, nystagmus, and, occasionally, hallucinations or disruptive behavior. There have been multiple anecdotal reports of increased irritability in adolescents with progressive use of inhalants. Chronic abuse is associated with more serious effects, including weight loss, muscle weakness, general disorientation, inattentiveness, and lack of coordination.

Acute inhalant intoxication rarely leads to death. When death does occur, however, it usually results from asphyxia, ventricular fibrillation, or induced cardiac arrhythmia after high exposure to solvents. There have been hundreds of cases of "sudden sniffing death," thought to be caused by cardiac arrhythmia shortly after inhalant use. "Bagging," which increases the arterial partial pressure of carbon dioxide, may further sensitize cardiac muscle to the effects of circulating catecholamines. Death may result from other risky behaviors related to acute intoxication, such as motor vehicle accidents or physical trauma associated with aggressive behavior.

In evaluating any patient who is suspected of inhaling solvents, either accidentally or to get high, it is important before beginning treatment to determine as precisely as possible not only the solvent but also other contributing factors. Such factors include other drug use (specifically, alcohol, tobacco, or marijuana), nutritional status, and respiratory irritants. In some cases, inhalant abuse may leave telltale clues, including organic odors on the breath or clothes, stains on the clothes or around the mouth, and empty spray paint or solvent containers or other unusual paraphernalia. Paying careful attention to these clues may help physicians prevent serious health problems or death.

Adverse Effects

Because of the heterogeneity of agents and patterns of use, complications of inhalant abuse vary. Cortical, cerebellar, and brain stem atrophy has been reported among chronic users. Such patients may present with cognitive impairment, cranial nerve signs, or evidence of damage to cerebellum or pyramidal tracks. These patients may also present with complaints of generalized weakness, with examination revealing peripheral neuropathies.

Renal complications have included metabolic acidosis, consistent with distal renal tubular acidosis, acute renal tubular necrosis, and chronic renal failure. Since most inhalants are irritants, they may cause coughing, wheezing, or upper-respiratory tract problems. In addition, patients may present with cyanosis or other pulmonary complications secondary to a variety of conditions caused by inhalant abuse, such as asphyxia, chemical pneumonitis, and meth-hemoglobinemia.

Despite the availability of several methods for detecting organic solvents in body fluids, laboratory assay for the presence of inhalants is not routine in clinical practice. Instead, inhalant intoxication, abuse, or dependence is diagnosed on the basis of history and physical examination.

The progression from transient social or isolated use to more chronic social or isolated use is not easily defined. In general, the more transient social or isolated user is less likely to have a history of criminal activity, is likely to have average intellect (with some possible early evidence of learning disability), and is 10 to 16 years old. The more chronic use pattern is seen in individuals who have a history of at least five years of use—often daily—with significant legal involvement, including assaults. Chronic users generally have very poor social skills, diminished educational achievement, and below-normal cognitive function.

There is increasing evidence that solvent inhalation during pregnancy produces a "fetal solvent syndrome" in infants whose mothers chronically abused solvents. The syndrome appears to mirror the deficits seen in fetal alcohol syndrome, with problems ranging from hyperchloremic acidosis to microencephaly. Many of the mothers who abused inhalants, however, also had high alcohol intake, making it difficult to differentiate the effects of alcohol from those of inhalants. ➡

Outcome

Addiction to inhalants appears to be relatively uncommon, with estimates in the range of 0.3% of the population or 3.7% of those who have tried inhalants in an experimental fashion. Inhalant use may be underrecognized and underreported in adults, and secondary initiation of inhalant use after addiction to other drugs may be more frequent than is generally recognized. Moreover, any adult history of inhalant use appears to be associated with substantial polysubstance use. Some researchers believe the pattern may simply be a "maturing out," a process in which those predisposed to addiction substitute other drugs for inhalants. Indeed, persons with a history of inhalant use are reported to be five to 10 times more likely than nonusers to report use of hallucinogens, opioids, stimulants, or sedative hypnotics. Comorbid psychosocial conditions, particularly antisocial personality disorder, also appear to be common among those who report a history of inhalant use.

Any conclusions regarding addictive properties of inhalants must be tempered by the possible biases and selection of subjects, however. It is commonly known that, over their lifetime, people diagnosed with antisocial personality disorders have the highest odds of comorbid substance use. Rather than having particularly pronounced addictive qualities, inhalants may simply be used differentially by those who have antisocial traits and who are therefore presumably at higher risk for addiction to any substance. Those without antisocial traits may be dissuaded from use by social forces, such as disapproval by their peer group, or by the properties of the inhalants themselves.

Treatment of the Inhalant Abuser

There is no accepted, agreed-upon treatment for inhalant abuse. Although adolescents in the experimental phase of abuse may respond to behavior modification, many drug treatment facilities refuse to treat the inhalant abuser because of a belief that inhalant abusers are resistant to treatment. The International Institute for Inhalant Abuse, based in Englewood, Colorado, developed a three-phase long-term treatment model to address the complex psychosocial, economic, and biophysical issues of the inhalant abuser. The neurotoxicity and encephalopathy that often accompany chronic inhalant use are likely to make progress slow and treatment difficult. Neuroleptics and other forms of pharmacotherapy are seldom useful for treating inhalant abusers. Since alcohol is a common secondary drug of abuse, a monitored program for alcohol abuse may be necessary.

Conclusion

Despite serious health risks, use of inhalants continues to be widespread, particularly among adolescents and even pre-adolescents. In this population, inhalant use may be associated with numerous conduct difficulties. Physi-

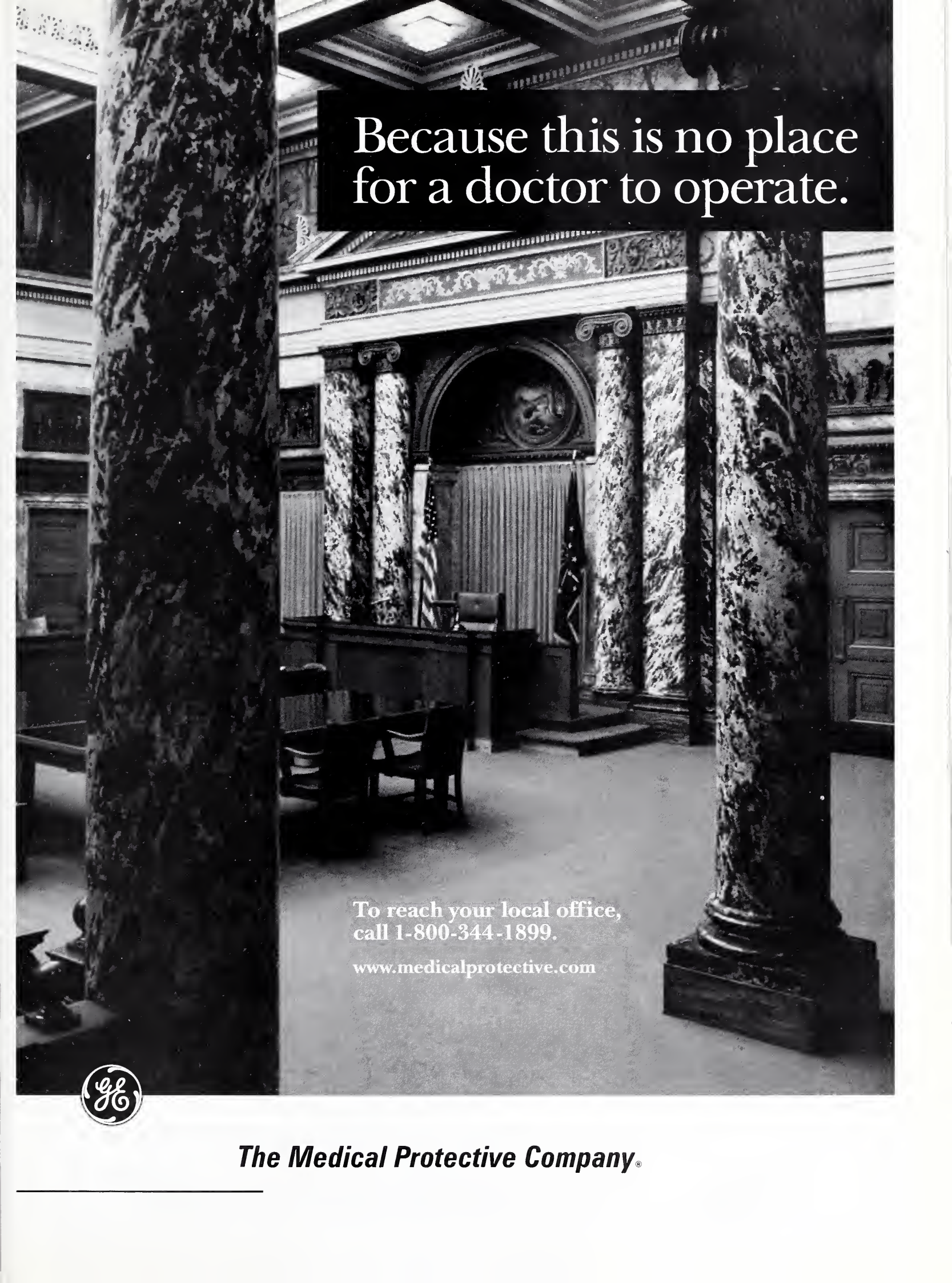
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cians who see youngsters in whom inhalant use is suspected must be alert to their patients' very high risk of using other psychoactive substances. Use of inhalants may be considered a marker, and perhaps a risk factor, for a significantly elevated risk of exposure and addiction to other substances over a lifetime.

The role of social factors, comorbid psychiatric disorders, and personality traits in predisposing individuals to initiate or maintain use is unclear. More information about these factors will benefit physicians who treat patients who abuse inhalants and may lead to a deeper understanding of the interplay between vulnerability to addiction and the process of addiction in general. **MM**

John Huxsahl is a child and adolescent psychiatrist at the Mayo Clinic in Rochester, Minnesota.



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Doctor Evans completed her residency in neurology at the Medical College of Virginia. Following this, she studied neuromuscular disease during her fellowship at Johns Hopkins University. She practiced in South Carolina prior to joining the Noran Neurological Clinic.

Doctor Evans has broad experience as a general neurologist and has special interests in neuromuscular disease with training in EMG, headache, multiple sclerosis and Parkinson's Disease. She is board certified in neurology.

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Computed Tomography of Humans and Bowed Stringed Instruments

Some Interesting Similarities

Steven A. Sirr, M.D., and John R. Waddle

ABSTRACT

We have used computed tomography to evaluate bowed stringed instruments and have noted interesting analogies with CT scans of humans. In humans, CT commonly detects a broad range of normal anatomic variations. Similarly, CT of violins and cellos demonstrates a wide range of normal structural variations. CT, often used to detect infections in humans, also detects defects from wood infestations. In humans, the unrelenting effect of gravity causes deformity of the demineralized spine. In old stringed instruments, plastic deformity of wood results from unrelenting string pressure. Trauma causes bone fractures in humans and wood fractures in bowed stringed instruments, and repairing fractures in both humans and stringed instruments requires various splitting devices. In summary, CT provides the physician and the luthier with a unique, noninvasive tool that can characterize the broad range of normal structures, pathological conditions, and repair.

Since the early 1970s, computed tomography (CT) has been widely used to detect and monitor diseases and pathological conditions. Over the past 10 years, the authors, a luthier (maker of bowed string instruments) and a radiologist, have utilized CT as a noninvasive tool to investigate normal structural components, damage, and repair of over 150 bowed stringed instruments.

Simone Sacconi, in an extensive study of bowed stringed instruments crafted by Antonio Stradivari, concluded that the robust, rich tone produced by these masterpieces "is derived not from presumed secrets, but from the systematic concurrence of every structural element, translated into a calculated harmony of relationship."¹ The sound originates from the application of precise principles of acoustical physics and chemistry to elements of the instrument, including the quality and cut of the wood, the shape, curvature, thickness, and tapering of the spruce front and maple back plates, the inclination and spacing of the "ff" holes, and the position of the spruce bass bar.¹

The Normal Structure of Bowed Stringed Instruments

CT of bowed string instruments is a safe, noninvasive procedure that provides images of all parts of the instrument, information that is particularly valuable for

luthiers who wish to study and construct a copy of a masterpiece.² High-resolution CT images reveal the elegant curves of the spruce front and maple back plates (archings), the thickness of the front and back plates (graduations), and the gentle curving outlines of the instrument.²

Damage and Repair to Instruments

Damage and subsequent repair are nearly universal in older stringed instruments.³ CT analysis detects internal damage that may go unnoticed by visual inspection. Bowed stringed instruments can be damaged by trauma, worm infestation, rapid changes in temperature and humidity, and

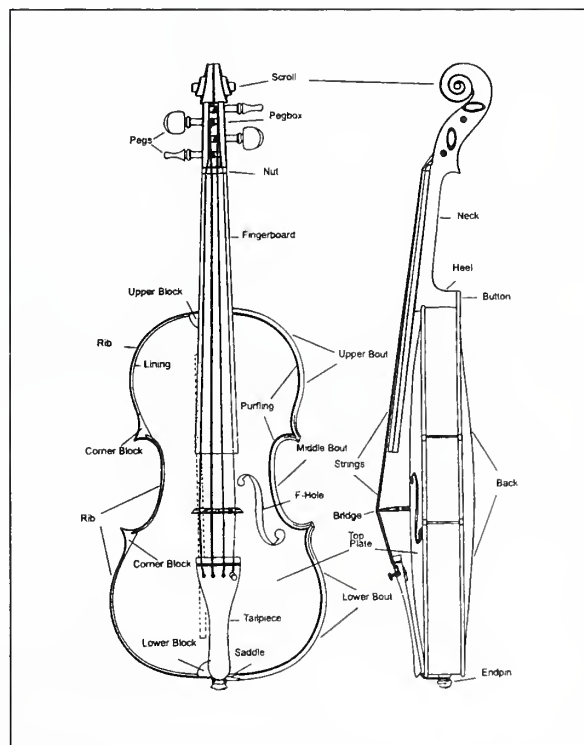


Figure 1a—Schematic of a typical violin.

Table

Bowed stringed instruments CT scanned since 1988

Violins	Date Constructed
Andrea Guarneri (Cremona, Italy)	1633
Nicolo Amati (Cremona, Italy)	1654
Attributed to Jacob Stainer (Absam, Germany)	1659
Antonio Stradivari (Cremona, Italy)	1672
Antonio Stradivari, "The Lark" (Cremona, Italy)	1698
Antonio Stradivari, "Lord Borwick" (Cremona, Italy)	1702
Giuseppe Grancino (Milan, Italy)	1708
Antonio Stradivari (Cremona, Italy)	1720-1725
Attributed to Guidantus (Bologna, Italy)	1720
Carol Antonio Testore (Milan, Italy)	1721
Attributed to Giuseppe Guarneri (Cremona, Italy)	1734
Pietro Antonio Dalla Costa (Treviso, Italy)	1752
Giovanni Guadagnini (Parma, Italy)	1759
Jean-Baptiste Vuillaume (Paris, France)	1872
Vincenzo Sannino (Naples, Italy)	1910
Cellos	
Domenico Montagnana (Venice, Italy)	1730
Anselmo Bellosio, front plate only (Venice, Italy)	1750
Attributed to Thomas Dodd (London, England)	1800

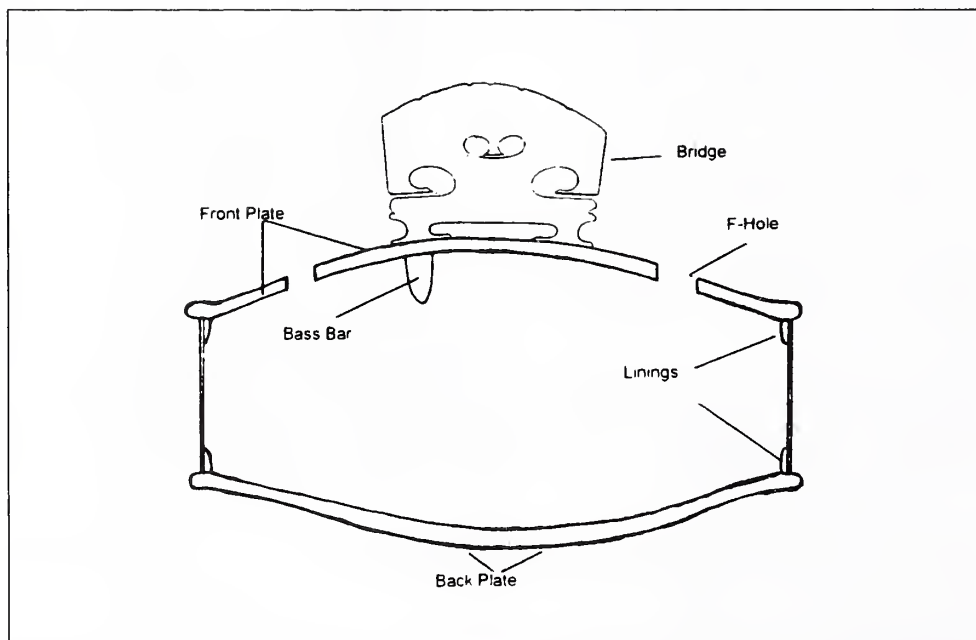


Figure 1b—X-ray CT section through the middle bout of a typical violin.

plastic deformity of the wood.

Damage affecting old violins and cellos includes cracks, warp, and wormholes. Previous repair work is easily detected, since glue and filler material have a much greater density than wood.

Accidents are the most common cause of damage to stringed instruments. Luthiers use various binding materials such as glue and filler to repair damaged instruments. Cleats, patches, and plates may be attached for additional support. Cleats, thin pieces of wood, are often grouped longitudinally in the direction of a crack. Patches and plates are thin wooden structures embedded in the original wood.

CT easily detects damage from wormholes.³ Larvae from the *Anobium domesticum* beetle burrow into the interior wood, creating a network of wormholes. At the wood's surface, the diameter of the wormhole is usually only a fraction of a millimeter, but as the worm grows into adulthood, the hole becomes several millimeters in diameter. Fracture may occur if the wood becomes sufficiently weakened.

Plastic deformity of wood is caused by the unrelenting string pressure transmitted perpendicularly to the spruce front plate. Plastic deformity frequently manifests as sunken and bulging arches of the front plates.

Materials and Methods

Since 1988, we have CT scanned over 150 bowed stringed instruments crafted from 1633 to the present. Seven of these instruments were built by famous luthiers of the Cremonese School of Violin Making, including Andrea Guarneri, Nicolo Amati, and Antonio Stradivari (see the table). Most of the student instruments we CT scanned were inexpensive, mass-produced, and had forged labels attributing them to the workshop of Antonio Stradivari.

Many different CT scanners were used to evaluate bowed stringed instruments. Generally, prior to CT scanning violins, the chin rest and the G string are removed to minimize metallic artifact. The instrument is carefully positioned on its back at the center position of the CT table, with

the scroll directed toward the scanner's gantry. We routinely obtained multiple high-resolution, 1-mm-collimated transaxial and coronal scans through the scroll, peg box, and body of the violin, with special attention to the region near the sound post and the bridge. When defects or repairs were detected, additional images were obtained.

Results

CT EVALUATION OF NORMAL STRUCTURE

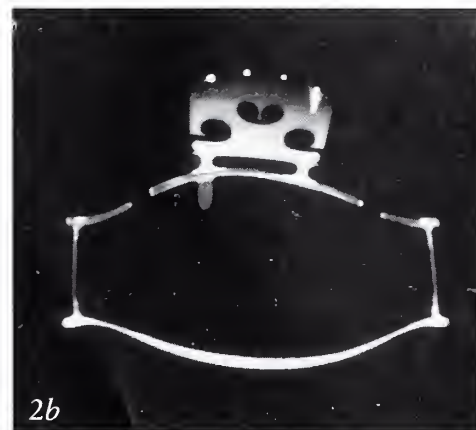
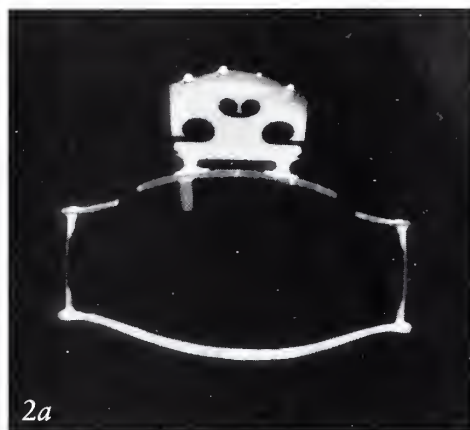
A schematic of a typical violin and an x-ray CT section through the middle bout of a typical violin are shown in figures 1a and 1b. Transaxial images through the bridges of two old Cremonese violins are shown in figures 2a and 2b. A coronal image through the ribs of a violin demonstrates the rib outline, which provides the luthier with an exact copy of the rib edges (Figure 3).

CT DETECTION OF DAMAGE AND REPAIR

Internal damage was detected in 11 of 13 bowed stringed instruments older than 100 years. The severity of damage ranged from only a few wormholes (Figure 4) to numerous wormholes and extensive repair. Wormholes or glue repair most commonly were found only in the scroll (73% of stringed instruments); however, wormholes also involved the peg box and blocks of three stringed instruments over 100 years old. We detected glue lines from repair in the front or back plates of 87% of the stringed instruments over 100 years old.

CT revealed repairs in every instrument older than 100 years. In all of these instruments, cracks were repaired with animal glue. A high-density filler material almost completely replaced the badly damaged scroll of one valuable Italian violin.

We also found wooden patches or cleats in each instrument over 100 years old. The characteristic CT appearance of a wooden patch or cleat is discontinuity between the grain lines of the original wood and the internal wooden patch.



Figures 2a and 2b—Transaxial images through the bridges of two old Cremonese violins.

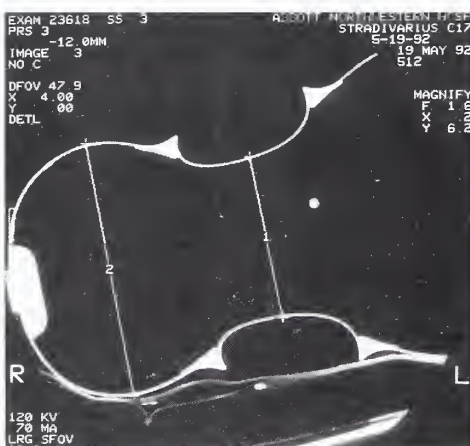


Figure 3—A coronal image shows the rib outline.

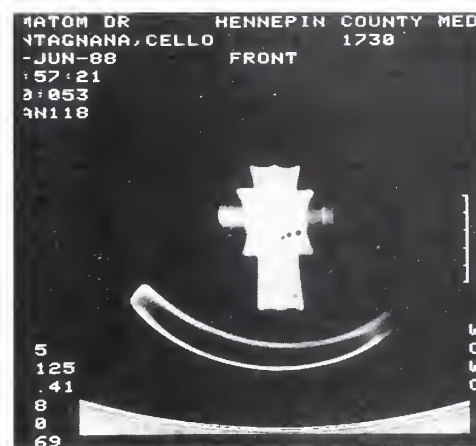


Figure 4—CT scan reveals a few wormholes in this instrument.

Conclusion

Since 1988, we have used x-ray computed tomography to evaluate over 150 bowed stringed instruments, including some built by masters of the Cremonese School of Violin Making.

CT provides both physicians and luthiers with a noninvasive tool to investigate the normal anatomy of humans and the normal structure of instruments, as well as pathology caused by infestations, trauma, and repair. It can also monitor the effects of aging in humans and instruments.

MM

Steven Sirr is a radiologist with Consulting Radiologists, Ltd., in Minneapolis. John Waddle is a luthier in St. Paul.

Acknowledgments

The authors wish to thank numerous technologists who generously provided technical assistance. We also

thank many radiologists who provided CT scanners and the many luthiers who allowed us generous access to precious bowed stringed instruments.

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Partners in Promoting Health

By organizing events such as hospice fund-raisers and preventive health fairs, physician spouses make a difference throughout the state.

Jennifer Thistle

Once mainly a social auxiliary for wives of physicians in the MMA, the Minnesota Medical Association Alliance (MMAA) today promotes educational and charitable endeavors throughout the state. Begun in 1922 with 99 charter members—a merging of the previously organized auxiliaries, including Hennepin County in 1910, St. Louis County in 1912, and Ramsey County in 1914—the MMAA plays an increasingly important role. Alliance members, who now include both husbands and wives, perform educational and philanthropic work, assist with public health and welfare activities, and promote health education.

The MMAA's impact is evident around the state. In southeast Minnesota, for example, the Zumbro Valley Medical Society Alliance established an asthma education program in the public schools, a project that won a national "Make a Difference" award from Allergy and Asthma Network—Mothers of Asthmatics Inc.

The project, which was developed in conjunction with the Olmsted County Public Health Department and the Rochester public schools, created a uniform asthma action plan for the 22 public schools in Rochester that gives each school direct access to a nebulizer. Previously, the 22 schools shared two nebulizers, a less than ideal arrangement because of transportation logistics. Now, each public school has its own nebulizer on site. The plan also calls for asthma education seminars for teachers and staff members within the public school system; 800 staff members have received training so far. High school and middle school athletic coaches will receive training in September.

In the northwest, Fergus Falls also has benefited from the actions of an MMAA group. To broaden its exposure in the community, the Park Region Medical Society Alliance, which in September 1998 became Minnesota's newest alliance group, sponsored a booth at the Westridge Mall Health Fair. Members distributed brochures and stickers about the "ABC" program—Always Buckle Children in the Back Seat—in addition to infor-

mation about the MMAA.

Farther north yet, the Lake Superior Medical Society Alliance held a health fair for 2,400 third- and fourth-graders in April. The weeklong event was open to public, private, and home-school students. Sponsored by the St. Mary's Duluth Clinic Foundation, St. Luke's Foundation, and the Miller Dwan Medical Center, the health fair had eight educational booths highlighting international health, growth and development, special needs, bones, organs, hospital rooms and surgery, personal safety, and fire safety.

In the Twin Cities metro area, Body Works, another health education fair, attracted a crowd of 2,400 youngsters to exhibits that ranged from heart, lung, and bone displays, to a simulation of an emergency room, to information on exercise and nutrition. The Hennepin Medical Society Alliance's 16th annual five-day event, which is held at the Lutheran Brotherhood auditorium in Minneapolis, targets third-graders in the Minneapolis public schools. The school system and the alliance decided to focus on third-graders because children that age generally seem to be the least self-conscious about their bodies and the most receptive to visual, hands-on, group education.

As part of Body Works, a disabled person talks to students about disabilities, and a large-group discussion called VIK (Very Important Kid) emphasizes self-esteem and reinforces what the attendees have been taught throughout the day. The message that students take away is simple: Doctors can help, parents can too, but a healthy mind and body are up to you.

The MMAA's good works were also evident elsewhere in the metro area this spring. In April, the Ramsey Medical Society Alliance hosted a communitywide fundraiser for Deva House, a hospice and respite home in St. Paul for terminally ill children and their families that is scheduled to open at the end of 1999 or in early 2000. The fund-raiser, which St. Paul Mayor Norm Coleman and Minneapolis Mayor Sharon Sayles Belton attended, raised \$30,000.

MMAA President Aims Efforts at Grassroots Level

MMAA mission statement: *To serve the membership; to work in partnership with the Minnesota Medical Association as advocates for the profession of medicine; and to promote educational and charitable endeavors that improve the health and quality of life for all people.*

Sandra Weissler, 1999–2000 MMAA president, first became involved in the alliance in 1990, having moved to Minnesota the year before. Soon after attending a Zumbro Valley Alliance meeting, Weissler found herself helping with a fund-raiser for the American Medical Association Foundation, creating treat-filled Valentine baskets that could be ordered and delivered to residents in the Rochester community. Weissler, who works part time in clinical skills education at Mayo Medical School, believes the alliance fills an important role by



delivering preventive health information and health education at the grassroots level.

Weissler's husband, Arnold, is a cardiologist at Mayo Clinic as well as a professor of medicine at the Mayo Medical School. In their spare time, the Weisslers enjoy golf, photography, fishing, reading, and classical music. Their four children and seven grand-

children reside in the Chicago, Detroit, and Anchorage communities.

Weissler succeeds Dianne Fenyk as MMAA president. Diane Gayes is president-elect. For information about joining the MMAA, contact Diane Gayes at 612/935-8828 or jgayes@earthlink.net.

Deva House, at 260 Summit Avenue, will be the first of its kind in the country. Besides serving as a hospital and respite home, Deva will house an educational center for area health professionals and other caregivers. As part of its continuing support to the project, the alliance will assist with Deva's silent auction in October, and, along with Ramsey Medical Society and the Ramsey Medical Society Foundation, it has another fund-raiser planned for the spring of 2000. Some alliance members also volunteer at Deva House.

The Stearns-Benton Medical Society Alliance, in the St. Cloud area, this spring focused on preventing drinking and driving during the prom. The alliance provided business cards bearing the warning, "One night of drinking can end a future ... don't drink and drive!" to area florists and formal wear shops to distribute to promgoers.

The Mower Medical Society Alliance, a group of about 20 members in southeastern Minnesota, continues to help a Bosnian family that, two years ago, came to the United States after being forced to leave Germany. The wife, an ob/gyn physician, her husband, and their family now live in the Austin, Minnesota, area. Alliance members provide ongoing support, such as assistance with the English language, to the family.

MM

Jennifer Thistle is MMA outreach field representative.

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Provided as a service of the MMA Committee on Accreditation and CME. For assistance with scheduling meetings or for information on future medical meetings and CME courses, please contact the MMA office: 3433 Broadway Street NE, Suite 300, Minneapolis, Minnesota 55413-1761; 612/378-1875. For a complete listing of our calendar, visit the MMA Web site at www.mnmed.org. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

SEPTEMBER 1999

Sept. 7-9 **The 2nd Mayo Vascular Symposium** Mayo Clinic, the North American Chapter of the International Union of Angiology, and the American Venous Forum; Mayo Civic Center, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Sept. 9-11 **Practical Surgical Pathology** Mayo Foundation; Mayo Clinic, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Sept. 10 **1999 Primary Care Conference** St. Mary's/Duluth Clinic Health System; Holiday Inn Hotel and Suites, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Sept. 10-12 **Annual Ambulance Medical Directors Retreat** Hennepin County Medical Center; Radisson Arrowwood, Alexandria, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Sept. 13-17 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Sept. 14 **Pelvic Floor Workshop** University of Minnesota; Midway Outpatient Clinic, St. Paul, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Sept. 15 **Endorectal Ultrasonography** University of Minnesota; Midway Outpatient Clinic, St. Paul, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Sept. 16-17 **Ninth Annual Practical Pediatrics for the Primary Care Physician** Children's Hospitals and Clinics; Children's Hospitals and Clinics, St. Paul, MN. CONTACT:

Betsy Julius, Medical Education, 2525 Chicago Avenue S, Minneapolis, MN 55404; 612/813-5884.

Sept. 16-18 **Radiology/99** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Sept. 16-18 **Principles of Colon and Rectal Surgery** University of Minnesota; Minneapolis Hilton Hotel, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Sept. 16-18 **62nd Annual Colon and Rectal Surgery: Principles and Practice Course** University of Minnesota; Minneapolis Hilton Hotel and Towers, Minneapolis, MN. CONTACT: Cynthia Iverson, 2550 University Avenue W, Suite 313N, St. Paul, MN 55114; 651/312-1556.

Sept. 16-19 **Mechanical Ventilation: Principles and Applications** University of Minnesota; Hyatt Regency Hotel, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite

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Sept. 22 **Medicare Compliance: A Tool Kit for Peace of Mind** Minnesota Medical Association and Midwest Medical Insurance Company; Earle Brown Conference Center, Brooklyn Center, MN. CONTACT: Vicki Westling, 3433 Broadway Street NE, #300, Minneapolis, MN 55413-1761; 612/378-1875 or 800/342-5662.

Sept. 22-25 **Heart Failure Society of America: Third Annual Meeting** University of Minnesota; Hyatt Regency San Francisco, Embarcadero Center, San Francisco, CA. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Sept. 23 **Herbal Medicines and Supplements** Minnesota Medical Association and Stearns-Benton County Medical Society; St. Cloud Civic Center, St. Cloud, MN. CONTACT: Jeff or Sherry Blair, Stearns-Benton County Medical Society, P.O. Box 1283, St. Cloud, MN 56302; 320/252-8550.

Sept. 23-25 **MAPA's 24th Annual Fall CME Seminar** Minnesota Academy of Physician Assistants; Quality Inn, Winona, MN. CONTACT: Deb Sanders, 3433 Broadway Street NE, Suite 300, Minneapolis, MN 55413; 800/342-5662.

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Sept. 23-25 **Quest for Quality '99** Mayo Continuing Nursing Education; Mayo Clinic, Rochester, MN. CONTACT: Mayo Continuing Nursing Education, Eisenberg S-41, 200 First Street SW, Rochester, MN 55905; 800/545-0357.

Sept. 24 **Contemporary Issues in Dialysis** Hennepin County Medical Center; Sheraton Inn Midway, St. Paul, MN. CONTACT: HCMC CME, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2075 or 800/263-4262.

Sept. 24-25 **Evaluation & Management of Peripheral Vascular and Cerebrovascular Disease** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Sept. 25 **Current Issues in the Treatment of Depression** The Menninger Clinic; Radisson Hotel South & Plaza Towers, Bloomington, MN. CONTACT: Jayne Roberts, P.O. Box 829, Topeka, KS 66601; 800/288-7377.

Sept. 29 **The COBRA/EMTALA Challenge** Minnesota Medical Association and Midwest Medical Insurance Company; Park Inn & Suites, Shakopee, MN. CONTACT: Robin Houlihan, MMIC, 6600 France Avenue South, #245, Minneapolis, MN 55435-1891; 612/928-8241 or 800/328-5532.

OCTOBER 1999

Oct. 1 **Treating Infections in Your Primary Care Practice** Hennepin County Medical Center; Radisson Hotel and Conference Center, Plymouth, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Oct. 1-2 **Twin Cities Marathon Sports Medicine Conference** University of Minnesota; Sheraton Inn Midway, St. Paul, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Oct. 2 **Mayo Clinic Hand Center Symposium: Rheumatoid Arthritis of the Hand** Mayo Foundation; Rochester Marriott Hotel, Rochester, MN. CONTACT: Registrar, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

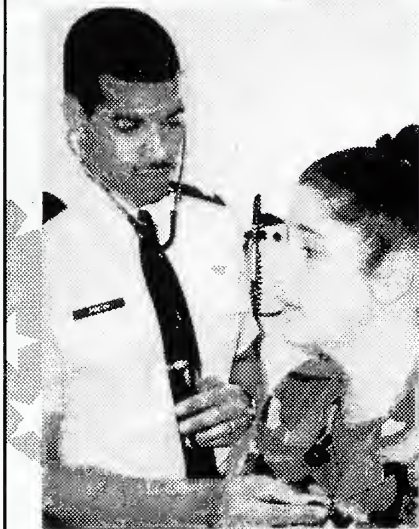
Oct. 4 **Milton G. Ettinger Lecture** Hennepin County Medical Center; Pillsbury Auditorium HCMC, Minneapolis, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 4-8 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Oct. 7-8 **26th Mayo Clinic Pediatric Days** Mayo Foundation; Mayo Clinic, Rochester, MN. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200

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Cardiology Today <i>Speaker: Nicolas Chronos, MD</i>	September 14
NIOSH-Approved Spirometry Training	October 4 - 5
Cardiology Today <i>Speaker: Willis K. Samson, MD</i>	October 12
Strategies in Primary Care Medicine	October 14 - 16
Understanding the Workers' Compensation System	November 2
Cardiovascular Conference	December 9 - 10
Fitting the Work to the Worker	December 9 - 10
• Pre-placement Evaluation	
• Advanced Medical Case Management	

In 1996, the HealthPartners Institute for Medical Education (IME) was created to support the ongoing development of excellence in clinical practice through a wide variety of educational services. The Institute has development, coordination and oversight responsibilities for the undergraduate, graduate and continuing education initiatives for health professionals within the various divisions of HealthPartners including Regions Hospital.

FOR FURTHER INFORMATION CONTACT:

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CME

First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 7-8 **1999 Oncology Conference** St. Mary's/Duluth Clinic Health System; Fitger's Theatre of the North, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Oct. 8 **Contemporary Issues in Dialysis 1999** Hennepin County Medical Center; Sheraton Inn Midway, St. Paul, MN. CONTACT: Victoria Bowler, 701 Park Avenue, Mail Code 860 D-5, Minneapolis, MN 55415-1829; 612/347-4456.

Oct. 8 **Electrocardiography for Primary Care Physicians** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 9 **Medical Management of the Surgical Patient** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 13-15 **Internal Medicine Review** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Bonnie J. Kohler, University of Minnesota, Office of Continuing Medical Education, 615 Washington Avenue, SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Oct. 14-15 **Obstetrics and Gynecology (30th Annual Seminar)** University of Minnesota; Regal Hotel, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Oct. 14-15 **Annual Forensic Science Seminar** Hennepin County Medical Center; Pillsbury Auditorium HCMC, Minneapolis, MN. CONTACT: Gail Kraemer, 530 Chicago Avenue, Mail Code L 870, Minneapolis, MN 55415; 612/347-7705.

Oct. 15 **Perspectives on End of Life Care** HealthEast Office of Research & Medical Education; Bethesda Rehabilitation Hospital, St. Paul, MN. CONTACT: Annette Anderson, 1700 University Avenue West, St. Paul, MN 55104; phone: 651/232-5104 or fax: 651/641-0683.

Oct. 22 **State-of-the-Art: Celebrating a Decade of Level 1 Trauma Care** Hennepin County Medical Center; Pillsbury Auditorium HCMC, Minneapolis, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Oct. 22-23 **Long Term Care** University of Minnesota; Sheraton Inn Midway, St. Paul, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

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Oct. 28 **Geriatric Care for the Primary Care Physician** Mayo Foundation; Mayo Foundation, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 29-30 **Advanced Life Support in Obstetrics** Hennepin County Medical Center; HCMC, Minneapolis, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

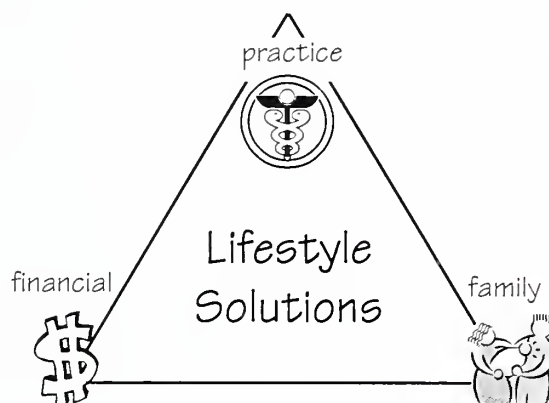
Oct. 31-Nov. 5 **Advances in Diagnostic Radiology and Advanced Radiology Life Support Course** Mayo Foundation; Loews Ventana Canyon Resort, Tucson, AZ. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

NOVEMBER 1999

Nov. 1-5 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

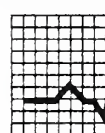
Nov. 2 **Current Issues in Cancer Care** Mayo Continuing Nursing Education; Mayo Clinic, Rochester, MN. CONTACT: Mayo Continuing Nursing Education, Eisenberg S-41, 200 First Street SW, Rochester, MN 55905; 800/545-0357.

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Fairmont, Minnesota 56031
Phone: 507-238-8596 Fax: 507-238-8510
Email: hansen.duwayne@mayo.edu
arntson.ennis@mayo.edu

Nov. 4-5 **Brain Tumor Conference** University of Minnesota; Cancer Center, University of Minnesota, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Nov. 5 **24th E.T. Bell Fall Pathology Symposium** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Nov. 5 **Eighth Annual Conference for Planners of Continuing Medical Education** Minnesota Medical Association; The Northland Inn, Brooklyn Park, MN. CONTACT: Jane Phillip, 3433 Broadway Street NE, #300, Minneapolis, MN 55413; 612/362-3744 or 800/342-5662.

Nov. 12 **Minneapolis/St. Paul Diabetes Forum** Hennepin County Medical Center; Radisson Hotel and Conference Center, Plymouth, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Nov. 12 **Common Upper Extremity Conditions** University of Minnesota; Sheraton Inn Midway, St. Paul, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

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Nov. 18-20 **Annual Orthopaedic and Trauma Seminar** Hennepin County Medical Center; Minneapolis Convention Center, Minneapolis, MN. CONTACT: Claudia Miller, 701 Park Avenue, Mail Code 862-B, Minneapolis, MN 55415-1829; 612/347-4220.

Nov. 19 **New Horizons Primary Care: The Management & Treatment of Breast Cancer** HealthEast Office of Research & Medical Education; Sheraton Inn Midway, St. Paul, MN. CONTACT: Annette Anderson, 1700 University Avenue W, St. Paul, MN 55104; phone: 651/232-5104 or fax: 651/641-0683.

D E C E M B E R 1 9 9 9

Dec. 3 **International Health at the Dawn of the Millennium** University of Minnesota; Windows on Minnesota, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Dec. 3 **Expanding the Promise of Stem Cell Transplantation** University of Minnesota; Ernest Memorial Convention Center, New Orleans, LA. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Dec. 6-10 **Team Management of Diabetes** Institute for

Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Dec. 10 **8th Annual Family Practice Update** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

J A N U A R Y 2 0 0 0

Jan. 10-14 **Bone and Tissue Tumors** Mayo Foundation; Maui, HI. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

F E B R U A R Y 2 0 0 0

Feb. 5-12 **HealthEast Winter Medical Seminar 2000** HealthEast; Melia Azul Ixtapa, Ixtapa, Mexico. CONTACT: Annette Anderson, 1700 University Avenue West, St. Paul, MN 55104; phone: 651/232-5104.

Feb. 24-26 **Mayo Clinic State-of-the-Art Symposium: Arrhythmia Management** Mayo Foundation; Silverado Resort, Napa, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.



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- The publisher reserves the right to decline or withdraw advertisements. The publisher is not responsible for clerical or typographical errors and is not permitted to divulge the identity of advertisers who have replies sent to box numbers.
- Cancellation of ads must be made by the first of the month preceding month of issue.

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BARGAINING *continued from page 25*

negotiation is an important issue for physicians, although opinions differ about whether this step is in the best interests of physicians and their patients. Proponents of the resolution view it as essential to the future of organized medicine. They say that many physicians feel intense pressure because of the conflicting demands of providing quality patient care and contracts with third-party payers. They also cite traditional labor organizations' growing interest in unionizing physicians and say they would prefer to join a labor organization sponsored by their professional association.

Other physicians fear that an AMA-sponsored labor organization will mean a loss to the image of the professional physician. They also fear that by sponsoring a union, the AMA will find it more difficult to maintain the ethics and standards of the profession as guiding principles.

No matter where a physician stands on the issue, under current law, collective negotiation is only available to employed physicians serving in nonmanagerial positions. Unless the antitrust laws or the labor laws change, self-employed physicians who are frustrated with their ability to negotiate with managed care organizations will not find relief in the formation of an AMA-sponsored labor organization. MM

Patricia Franklin is director of health law and Christina Rich is associate legal counsel at the Minnesota Medical Association.

REFERENCE

1. AmeriHealth HMO Inc. and United Food and Commercial Workers Local 56, NLTB Case No. 4-RC-19260, 5/24/99.

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The only thing Hund likes better than riding is teaching Pony Club kids. "Riding helped me grow up in many ways," says Hund, "so it's fun to see it helping the Pony Clubbers grow up, too. It sounds like a cliché, but there is a period in every kid's life when they need a pony. It was Winston Churchill who said, 'The outside of a horse is good for the inside of a boy.' It's true for girls, too. It's one of the few sports where a 42-year-old and an 8-year-old can both learn courage and responsibility."

How does Hund find the time for all this? "I have a 10-minute commute to work, I keep the horses at home, not at a stable, and I don't watch TV."

Hund says eventing makes him a better doctor. For one thing, he says, "Docs who just do medicine end up being pretty dull people." His particular hobby helps him connect with his rural patients. "We forget so quickly [that] most Minnesota farmers used horses instead of tractors until after World War II," he says. Many of Hund's patients like to leaf through the horse pictures and old draft horse calendars in his exam rooms. "Part of being a doctor is getting in groove with your patients. So is keeping your cool during a cardiac arrest, which is a little like jumping over an obstacle with a big ditch in front of it."

MM

Howard Bell is a medical writer living in Onalaska, Wisconsin.

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The Horseman

Dr. Fred Hund says eventing, a triathlon for horseback riders, makes him a better doctor.

By Howard Bell

Fred Hund, M.D., learned what it's like to be the patient when his 9-year-old thoroughbred, Free Radical, threw him to the ground during a jumping session four years ago. "I broke three ribs, the transverse processes on three lumbar vertebrae, and bruised my liver," recalls the 42-year-old Willmar, Minnesota, internist. Still, Hund says that "combined training," also known as the equestrian sport "eventing," is no more dangerous than downhill skiing. "Every rider falls," he says. "It's part of the sport."

Steeped in centuries-old tradition and old-world military pageantry, eventing is a triathlon for horseback riding. European armies used eventing to determine which horses and riders were the bravest and most fit for battle. For equestrian competitors today, dressage, cross-country, and the obstacle course combine to make eventing "the ultimate test for horse and rider."

Hund started riding at age 6, when he first straddled a saddle in Kansas City, Kansas. His mother, two sisters, and grandfather all rode, the latter until he was 84. Hund's wife, Kathryn Nelson, M.D., is a Willmar family practitioner who competes in "combined driving," similar to combined riding except the horse pulls a cart. In fact, horses are what brought the couple together 18 years ago in Minneapolis. "Kathy's roommate set us up," Hund recalls. "She figured two doctors who love horses—how can this go wrong?"

The couple's two daughters, Amanda, 11, and Sarah, 8, are also avid riders and members of the

Willmar area Pony Club, in essence a 4-H for English riding. Fred and Kathy organized the local chapter and teach horsemanship at their Glacial Ridge hobby farm outside Willmar. "Nothing brightens my day like coming home

from the clinic and seeing 20 Pony Club girls doing jumps and having a great time," Hund says.

Clearly, for this family, equestrian eventing is more than a sport—it's a way of life. A typical competition begins with dressage, which tests a horse's obedience and composure as it performs a defined pattern in an arena, much like the old compulsory figures in ice skating. Formal and dashing, Hund sports black riding boots, tan riding breeches, a helmet, and a black coat, which complement Free Radical's sleek reddish-brown coat and lustrous black mane, tail, and lower legs. "Dressing formally," Hund says, "is a sign of respect for the sport."

Cross-country tests courage and stamina—of horse and rider alike. Hund guides Free Radical across two miles of open country, jumping over 20 obstacles at a full gallop, which means speeds of up to 20 miles per hour. Proper attire for this event includes a polo shirt, a helmet, and in Hund's case, a blue and yellow safety vest. "My wife is Swedish,"



Equestrian competitor Fred Hund, M.D., and his thoroughbred, Free Radical.

he explains.

During arena jumping—the final event—Hund and Free Radical must clear several obstacles placed close together along an irregular, winding course that tests precision, obedience, and endurance.

Equestrian sports are the only Olympic sports in which men and women compete against each other. Although Hund competes at the "preliminary" level, not the Olympic, he ranks among the nation's top 15 percent of all participants in the sport.

Hund and Free Radical travel to about four events each year. Recently, they finished in fourth place twice—pretty good in a sport in which being at your best in all three events isn't always easy. Last spring, however, they bombed out in Kansas City when they tangled with the cross-beam of a cross-country obstacle. Free Radical got stuck on top of the beam, balanced precariously like a teeter-totter, and had to be cut free.

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SUICIDE PREVENTION • BIPOLAR DISORDER • A HISTORY OF LOBOTOMY

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Mental Illness Happens to Real People

Mental health "don't get no respect." To many observers, the subject of mental illness is distasteful. Mental health is discounted for reasons that are partly understandable and probably underreported.



But whatever the reasons, the lack of respect definitely undermines progress in providing optimum mental health care. This month's *Minnesota Medicine* attempts to restore respect for mental health.

As Sen. Paul Wellstone notes in his editorial (see page 51) and Tipper Gore has preached in her national campaign,

.....
*"Treating
 psychiatric
 illness will
 always be
 expensive
 and will
 never be
 easy."*

mental health lacks respect from federal and state governments. The government views psychiatric and chemical dependency patients as expensive recidivists who sap Medicaid and Medical Assistance budgets. The government would like mental health patients to go away.

Mental health lacks respect from managed care. HMOs and third-party payers observe the same fiscal hemorrhaging seen by governments and have tried all manner of tourniquets to stem the flow. They deny care. They cap coverage. They "carve out." All are ploys to evade the fundamental truth that mental health patients are costly to treat. HMOs would like mental health patients to take a back seat.

Mental health lacks respect from some nonpsychiatric practitioners. Many physicians venture with trepidation and only under considerable duress onto the psych floor for consults. They dread the maze of bizarre symptoms, the discomfort of strange interpersonal relationships, and the specter of seemingly untreatable disease. Many physicians would rather not deal with the frustration of seeing mental health patients.

And mental health lacks respect from the public. For many people, psychiatry and its patients conjure images of God-addressing street people or Hollywood stereotypes.

Much of the public would like mental health patients to live somewhere else.

So why spend time, words, or money on this troubling segment of health care? Because, in truth, the problem is larger and closer than most of us realize. Few lives are untouched by chemical dependency, and psychiatric illness is close too. It's a neighbor's son who shoots himself. Or a colleague who takes a therapeutic leave to deal with a life-draining depression.

Psychiatric patients are not kooks or wild-eyed beasts. They're a successful professional confined to a psychiatric unit for months for steroid-induced psychosis. They're a neighborhood family devastated by the bipolar disorder that affects the father and three children. They're Nobel Prize winners like John Nash, struck down by schizophrenia at the peak of a brilliant mathematics career, only to re-emerge Van Winkle-like 40 years later to collect his Nobel Prize for work done during his 20s.

And psychiatric patients and their families hurt as much as any cancer or AIDS victim. The poised professional remembers his abject terror at confronting an elevator. The neighborhood mother describes her family's mental illness as a "thief" stealing those she loves. Pain comes in many different packages; victims of mental illness have their own unique brand.

Neuroscience and psychiatry promise exciting help for people with mental health problems. But treating psychiatric illness will always be expensive and will never be easy. Physicians and the public need to see the person behind the illness when they encounter a psychiatric patient. Government and managed care organizations need to see individuals, not carve-outs, when they make coverage decisions. It all starts with respect.

.....
 -Charles R. Meyer, M.D., Editor-in-Chief

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So talk to your doctor, especially if you have risk factors for heart disease, like smoking, diabetes, high blood pressure or high cholesterol; or if you're pregnant, nursing or taking medications.

1. Source: Physician Drug and Diagnosis Audit (PDDA), November 1996–October 1997, Scott-Levin, a Division of Scott-Levin, PMSI, Inc.

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Generic names: sumatriptan succinate, sumatriptan

Please read this summary of information about IMITREX before you talk to your doctor or start using IMITREX. No summary can take the place of a careful discussion between you and your doctor. Only your doctor has the medical training and the complete prescribing information necessary to determine if this medicine is right for you. Once you read this summary, you should discuss with your doctor whether IMITREX is appropriate treatment for you and ask any questions you may have.

WHAT IS IMITREX?

IMITREX is the brand name of sumatriptan, a drug intended to relieve your migraine headaches but not to prevent or reduce the number of migraine headaches you experience. IMITREX should be used only to treat an actual migraine attack. IMITREX can be obtained only with a doctor's prescription and should be used by adults only after discussing the choice with your doctor, taking into account your individual preferences and medical circumstances.

HOW DOES IMITREX WORK?

How IMITREX works is not completely understood. IMITREX is a 5-HT₁ agonist that seems to relieve migraine headaches by acting like a brain chemical called 5-hydroxytryptamine, causing some blood vessels in the head that are swollen during a migraine to constrict (that is, to become smaller), which helps relieve migraine headache.

IMPORTANT SAFETY CONSIDERATIONS

Although the vast majority of patients who have taken IMITREX have not experienced any significant side effects, some patients have experienced serious heart problems and, rarely, considering the extensiveness of IMITREX use worldwide, deaths have been reported. In all but a few instances, however, serious problems occurred in patients with known heart disease, and it was not clear whether IMITREX was a contributing factor in these deaths.

Serious events relating to the blood vessels in the head (e.g., brain hemorrhage, stroke) have been reported in patients who were taking IMITREX. Some of these have resulted in death; however, the relationship of IMITREX to these events is uncertain. In a number of these cases it appears possible that patients were not experiencing a migraine but rather an event due to blood vessel disease in the head. IMITREX was given in the incorrect belief that the person may have been suffering a migraine. Therefore, you should not take IMITREX if the headache you are experiencing is different from your usual migraine attacks. People who suffer from migraines may be at increased risk of certain blood vessel events in the brain (e.g., hemorrhage, stroke, or transient ischemic attack).

Ask your doctor about these and additional safety considerations.

WHO SHOULD NOT TAKE IMITREX?

Some types of migraine headaches should not be treated with IMITREX, and some patients should not take IMITREX because of an increased risk of serious side effects.

- If you have had a heart attack, stroke, transient ischemic attacks, peripheral vascular disease (including ischemic bowel disease or Raynaud's syndrome), or any sort of heart disease or symptoms that are associated with constriction of blood vessels, such as ischemic heart disease, angina, or coronary artery vasospasm, you should not use IMITREX.
- If you have uncontrolled high blood pressure, you should not use IMITREX.
- If you are taking certain drugs for depression, talk with your doctor. IMITREX should not be used if you take or have taken within the last 2 weeks, monoamine oxidase inhibitors (MAOIs).
- Your doctor will discuss with you the type of migraine headaches you have. If you have hemiplegic or basilar migraine, you should not take IMITREX. IMITREX should be used only in patients who have been diagnosed by a physician as having migraine with or without aura.
- Tell your doctor about any other medications you are taking. If you are currently taking any migraine medications that include ergot alkaloids, such as methysergide or dihydroergotamine, or other 5-HT₁ agonists, do not take IMITREX within 24 hours of taking these medications.
- Do not take IMITREX if you are allergic to sumatriptan or any of the ingredients in IMITREX.

WHAT MEDICAL PROBLEMS OR CONDITIONS SHOULD I DISCUSS WITH MY DOCTOR?

■ If you have risk factors for heart problems, you should tell your doctor. Your doctor should examine you for heart disease to see whether IMITREX is appropriate for you. Risk factors include high blood pressure, high cholesterol, obesity, diabetes, and smoking. Other patients with risk factors for heart disease are women who are past menopause (whether natural menopause or menopause resulting from surgery), men over 40 years old, or patients with a family history of heart disease. If you have risk factors and your evaluation for heart disease is satisfactory, your doctor may ask you to take the first dose of IMITREX in the doctor's office.

- Tell your doctor if you have chest pains, shortness of breath, or irregular heart beats.
- Tell your doctor if you are taking selective serotonin reuptake inhibitors (SSRIs).
- Tell your doctor if you have a history of epilepsy or seizures.
- Tell your doctor if you have liver or kidney problems.
- Tell your doctor if you have ever had to stop taking any medication because of an allergy or other problems.

USE OF IMITREX DURING PREGNANCY AND BREAST-FEEDING

Do not take IMITREX if you are pregnant, think you may be pregnant, are trying to become pregnant, are not using adequate birth control methods, or are breast-feeding, unless you have discussed this with your doctor.

HOW TO USE IMITREX TABLETS OR NASAL SPRAY

Tablets: For adults, the usual dose is a single tablet taken whole with fluids. A second tablet may be taken if your symptoms of migraine come back or if you have partial response to the first dose, but no sooner than 2 hours after taking the first tablet. For a given attack, if you have no response to the first tablet, do not take a second tablet without first consulting with your doctor. Do not take more than a total of 200 mg of IMITREX Tablets in any 24-hour period.

Nasal Spray: For adults, the usual dose is a single spray administered into one nostril. If your headache comes back, a second nasal spray may be administered anytime 2 hours after administering the first spray. For a given attack, if you have no response to the first nasal spray, do not take a second nasal spray without first consulting your doctor. Do not administer more than a total of 40 mg of IMITREX Nasal Spray in any 24-hour period. The effects of long-term repeated use of IMITREX Nasal Spray on the surface of the nose and throat have not been specifically studied.

The safety of treating an average of more than four headaches in a 30-day period has not been established.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF USING IMITREX?

Do not rely on this summary alone for information about side effects. Your doctor can discuss with you a more complete list of side effects that may be relevant to you.

The most frequently seen side effects are tingling and warm/cold sensations with IMITREX Tablets and bad/unusual taste with IMITREX Nasal Spray.

- Some patients feel pain or tightness in the chest or throat when using IMITREX. If this happens to you, discuss it with your doctor before using any more IMITREX. If the pain is severe or does not go away, call your doctor immediately.
- If you have sudden or severe abdominal pain after taking IMITREX, call your doctor immediately.
- Shortness of breath, wheeziness, heart throbbing, swelling of the eyelids, face, or lips, or a skin rash, skin lumps, or hives happen rarely, but if they happen to you, tell your doctor immediately. Do not take any more IMITREX unless your doctor tells you to.
- Some patients have feelings of tingling, heat, flushing (redness of the face lasting a short time), heaviness, or a feeling of pressure after taking IMITREX. A few patients may feel drowsy, dizzy, tired, sick, or experience nasal irritation (Nasal Spray only). Tell your doctor about these effects at your next visit.
- If you feel unwell in any other way or have any problem that you do not understand after taking IMITREX, tell your doctor immediately.

WHAT SHOULD I DO IF I TAKE AN OVERDOSE?

If you have taken more medication than you have been told, contact either your doctor, a hospital emergency department, or the nearest poison control center immediately.

HOW SHOULD I STORE IMITREX?

Be sure to keep your medicine in an area that cannot be reached by children. It may be harmful to children.

IMITREX Tablets and IMITREX Nasal Spray should be stored at room temperature and do not require refrigeration. Do not store above 86° F (30° C) or below 36° F (2° C). Store away from heat and light. If your medication has expired (the expiration date is printed on the label) throw it away as instructed. If your doctor decides to stop your treatment with IMITREX, do not save any leftover medication unless your doctor tells you to do so. Throw it away as instructed.

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Prime Time

for the Science of Emotions and Thinking

S. Charles Schulz, M.D.,

*has become the new head of
the University of Minnesota
Department of Psychiatry at
a time when his specialty is
at the forefront of medicine.*

When S. Charles Schulz, M.D., began his medical career, psychiatry was a far cry from the headline-grabbing specialty it has become today. "When I was in medical school at UCLA in the late 1960s, very little attention was paid to people with schizophrenia and manic-depressive illness and other psychiatric disorders," says Schulz, 53, who became head of the University of Minnesota Department of Psychiatry in July. Innovations in medication treatments, increasingly sophisticated brain imaging techniques, and public awareness of and concern about mental illness have pushed the field into the limelight.

"In 1975, you never would have seen something like the 1990 *Newsweek* issue with the Prozac pill on the cover," says Schulz. "This is related to the development of compounds with very few side effects that made the idea of recognizing a psychiatric illness and asserting treatment more possible." And the advances are not limited to drugs.

"Over the last 15 to 20 years, psychiatry research has made a lot of gains," says Schulz. "You can't pick up *Scientific American* or watch the news very frequently without seeing something about clinical neuroscience. Whether it's psychiatry, psychiatric neurology, or neurosurgery, it's popular now. This research has brought the science of emotions and thinking to the forefront."

Organizations such as the

National Alliance for the Mentally Ill and the National Depressive and Manic-Depressive Association, founded by relatives of people with mental illness, have also helped raise awareness through lobbying and education efforts. "This is a completely new thing. No parent in 1972 would go to their congressional representative and say, 'My son has schizophrenia and you need to do something about it.' Advocacy groups have pushed the agenda to the national scene and brought it out

in public," says Schulz.

Schulz, who was professor and chair of the Department of Psychiatry at Case Western Reserve University in Cleveland, Ohio, before coming to Minnesota, replaced Paula Clayton, M.D., who had headed the Minnesota program from 1981 until she retired to Santa Fe, New Mexico, this year (see Dr. Clayton's article, "Diagnosing and Treating Bipolar Disorder," on page 46).

If his own research interests are any indication, the department under Schulz's direction will be active in the search for new medications to treat illnesses such as schizophrenia and bipolar disorder. With more new drugs out and on the way, Schulz sees a need for a clinical trials unit at the university. "The testing of new medications has become a hot topic," he says. "I believe the university should have a safe, highly organized, highly professional place for testing new medications or testing medications for new applications."

JODI OHLSEN READ

Schulz also hopes to pick up where he left off at Case, conducting research on brain organization using functional magnetic resonance imaging (fMRI). Brain imaging technology has improved dramatically in the past 10 years, with the emergence of MRI. "The pace of change is stunning," Schulz says. "When our research began using MRI in 1990, it was a structural tool. Now, in recent years, we have spectroscopy and functional MRI."

MRI not only produces a clearer picture of the brain but also gives researchers different ways to examine the brain. "Functional MRI, which is an area of research that is extremely strong at the University of Minnesota, allows us to see how the brain works," says Schulz. "In its earliest form, you could do an fMRI scan and have the person do some finger tapping and then see the area of the brain that is coordinated with that activity."

Schulz finds the implications of fMRI for psychiatry particularly exciting. "Now you can ask people to do cognitive thinking tasks and find where in the brain these tasks are localized. For illnesses like schizophrenia, we're now looking to test whether these patients' brains are just not organized in the same way."

A 1973 graduate of UCLA Medical School, Schulz completed his residency in psychiatry at UCLA in 1977, then served as a clinical associate with the National Institute of Mental Health (NIMH) for three years, focusing on schizophrenia. He subsequently established the Schizophrenia Program at the Medical College of Virginia, contributed to the NIMH National Plan on Schizophrenia Research, and helped launch the biennial International Congress on Schizophrenia Research.

Continuing that interest, Schulz plans to create a specialty program in schizophrenia at the University of

Minnesota that will research the early stages of the illness and better treatments, using tools such as MRI. Roughly 40 percent of people who have schizophrenia, a severe thought disorder that affects about 1 percent of the population, experienced their first symptoms as teenagers. Brain imaging could improve understanding of the onset and progression of schizophrenia and help researchers develop treatments, he says. Schulz also plans to develop a program for people with personality disorders, which are characterized by impulse control and anger management problems and by self-injurious behavior.

The New Drugs

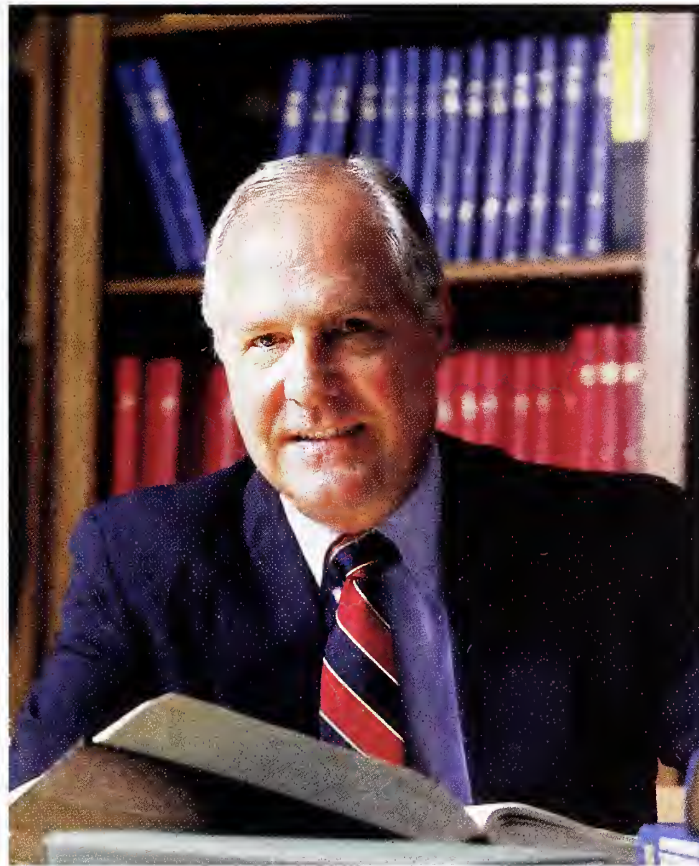
Several new psychiatric drugs have been hailed as vast improvements over the antipsychotics developed in the 1950s, which commonly have unpleasant side effects such as parkinsonism. Drugs like clozapine, Prozac, and Zoloft, which work better and have fewer side effects

than the earlier drugs, have changed psychiatrists' attitudes about treating mental illness.

"We are now thinking about identifying who needs treatment, rather than saving people from treatment with significant side effects," says Schulz. "The whole idea is to encourage treatment rather than reserve treatment. It's because of the advances that have made the treatments safe and acceptable."

More work remains to be done, however. Most recent pharmaceutical research has examined where medicines act on receptors in the brain and then developed chemicals that block related compounds. "Now," Schulz says, "scientists in the industry are thinking if we could find the genetic basis for the pathophysiology for psychosis, then maybe we could design medicines specific for the illness, rather than continuing to screen compounds."

"I don't think we'll find a single gene for schizophre-



S. Charles Schulz, head of the University of Minnesota's Department of Psychiatry

PHOTOGRAPH BY JOHN NOLTNER

nia. But if we have a better understanding of the gene or genes associated with the problems of schizophrenia, we might be able to design drugs that act on more specific places in the brain," says Schulz.

Depression: Underdiagnosed

Although recent publicity has made more people aware of mental illness, depression will continue to be a growing health concern, says Schulz. "As much attention as Prozac has gotten, we still have some big problems," he says. "Six percent of the population will have a major depression during their lives—and that's 12 million people. Epidemiology studies show that depression is still dramatically underrecognized, with the majority going untreated."

Most people who get treatment for depression obtain it from their family physician, and the majority of prescriptions written for Prozac and similar drugs come from physicians other than psychiatrists. "Some people in psychiatry would say that the good side is that more depression is being recognized. Not everyone needs to see a psychiatrist to start treatment. It's better to be treated, and medicines are safe, so it's a positive thing," says Schulz.

Primary care physicians treating people who have psychiatric illness is nothing new. What has changed, says Schulz, is that primary care physicians are now learning the proper use of psychiatric drugs. "I think the major shift has been that there's been more explicit training outside the field of psychiatry on how to use the medicines," he says. "It's better for family practitioners to know how to use them rather than to have a split in the field and no training given." The University of Minnesota Medical School now offers a joint residency program in psychiatry and family practice to encourage cross-training. About six residents participate in this program.

Schulz believes it is important to introduce medical students to psychiatry early in their education. As part of this effort, the University of Minnesota Medical School presents a curriculum that includes topics in behavioral sciences, such as psychology, brain function, and ethics, in the first year. "It is essential that we introduce all physicians, no matter what their specialty, to psychiatry, since the issues are so prevalent today," says Schulz. "In training psychiatrists, it is a challenge to integrate all that has been learned about the brain and its functions, the in-depth understanding of medicines, the skills needed to be an effective therapist, and the sense of responsibility to our community. That is the great challenge."

The Next Level

Thirty years ago, Schulz chose psychiatry because he believed he could make the most difference in what he perceived to be a neglected discipline. "Given my interest

in firm medical training and the lack of attention that the seriously mentally ill had, I believed I could make a greater impact on the field through psychiatry," he says. It's a belief he still holds today. "My ultimate goal is that programs in which academic psychiatrists focus on clinical research will contribute to the quality of care of patients in the Fairview system." That goal has been furthered by the recent relocation of faculty offices to the Fairview-University Medical Center Riverside site, which makes continual on-site psychiatric care possible. Fairview-University Medical Center, Riverside campus, is the largest provider of behavioral services in five states.

When Schulz arrived at the U's psychiatry department, which has 37 faculty members, it was already a national leader in many areas, including substance abuse and eating disorders. His predecessor, Paula Clayton, helped build the department into one of the largest at the university today. "She took over the department when the annual research budget was less than \$1 million and the overall budget was less than \$5 million," says Michael P. Nemcek, assistant to the dean, assistant administrative center director, Family Practice, Community Health and Psychiatry. "She was the main catalyst in bringing it up to its present state, with \$8 million of research funding and an overall annual budget of \$15 million. She truly fostered an environment that allowed faculty to develop both in education and research."

"Now, with Dr. Schulz, there is such a positive energy and we're excited and ready to move on to the next level." MM

Jodi Ohlsen Read is a freelance writer and editor. She wrote the cover story on blood banking in the June issue of Minnesota Medicine.

S. Charles Schulz: At a Glance

Boyhood: Grew up in the suburbs north of Chicago; graduated from Evanston High School.

Education: University of Southern California, B.A., cum laude, 1968; UCLA Medical School, M.D., 1973; psychiatry residency, UCLA, 1977.

Spouse: Shannon, homemaker (former psychiatric nurse)

Children: Daughter, Lindsay, 23, graduate of University of Michigan; son, William, 14 and in the 8th grade.

Hobbies: Golf, cross-country skiing

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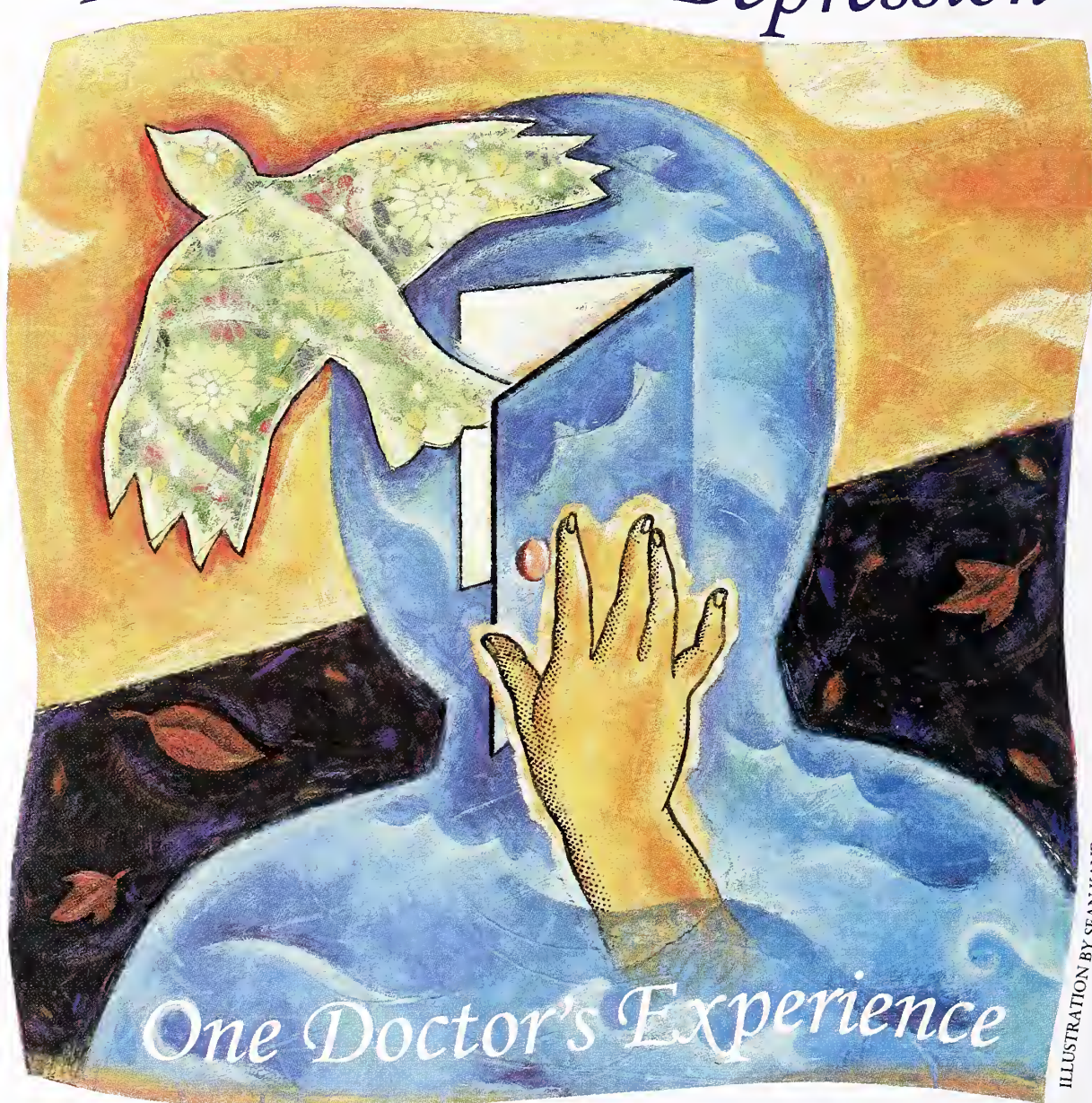
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Let's Talk about Depression



Jenie M. Smith, M.D.

Depression affects more of us than we ever acknowledge.

Let's start talking about it.



It Started with the Broccoli

I am a second-year resident stuck in a spring wet with endless mud and clouds. Getting ready for work each day has become a progressive struggle. Taking a shower is an enormous endeavor—even the thought makes me tired. I conserve my energy for making appropriate medical decisions for patients, so choosing between sweater and skirt or blouse, blazer, and pants paralyzes me. I sit on the edge of the bed this morning, staring at the closet, craving a deep, dark, primitive sleep. No dreams, no emotion, not this life that requires so much effort to maintain. I am so tired.

I do get to work, though, and I am frighteningly capable. I exhaust myself manufacturing a pleasant, even jovial, exterior. I am polite, reasonable, competent. In fact, I excel. No one could have known that this morning, as I sat on the edge of my bed staring at the closet, not existing began to seem like an option.

Later, back at home, I flop on the couch and stare blindly at a “M*A*S*H” rerun. I’m irritated that nothing is started for dinner, even though Jenny has been home only 10 minutes longer than I have. I stomp into the kitchen, where she sits reading the newspaper. There are groceries on the counter, and I start flinging produce dramatically onto the cutting board, wielding a knife in violent streaks through the air. When Jenny asks what’s wrong, I scan, choose my weapon wisely, load it with a backward swing, then fling it forward. A head of fresh organic broccoli strikes Jenny’s temple.

Later that evening as we’re silently falling asleep, Jenny says, “Do you think you might be depressed?” I feel like I’ve been dropped down a well. This cannot be my problem. It’s everyone else who is crazy. But I know she’s right. And I’m terrified.

I ask my program director for a psychiatry referral just hours after he has offered me a chief resident position.

Crazy

I am convinced that I am truly mentally ill. I can't read anymore because I can't concentrate long enough to finish even a single sentence. My previously remarkable ability to remember numbers is gone, and now I can't retain a phone number I just retrieved from information. My brain jumps from thought to thought, yet my body is so slowed that it's as if my muscles have been drugged. Jenny's suggestion that I'm depressed seemed reasonable at first, but I've never been tearful, hopeless, or sad. So I'm convinced I'm crazy. I've invested so much time and energy fooling the people around me that I'm terrified the shrink will be fooled, too.

Then he asks the questions. When he starts with "frequent crying spells?" and I say no, I think, That's it. I'm nuts. Then he asks the other questions. Every answer is incontrovertibly yes. Until now, until these questions are posed to me by someone else and I have to speak the answers aloud, I have not realized how sick I am. With each positive reply, I sink lower. I am a failure, weak, susceptible. I am not supposed to be depressed. I've survived an abusive childhood, the death of two parents. I'm successful, I have a happy, stable life with a partner who adores me. For crying out loud, I'm a vegetarian. Nothing could have prepared me for the reality that acknowledging these symptoms means I am one of "them."

It also means that I have a diagnosis, though, and a diagnosis implies a treatment. Getting treated is far more important than cause, precipitant, risk, or side effect. I don't care. I just don't want to feel like this.

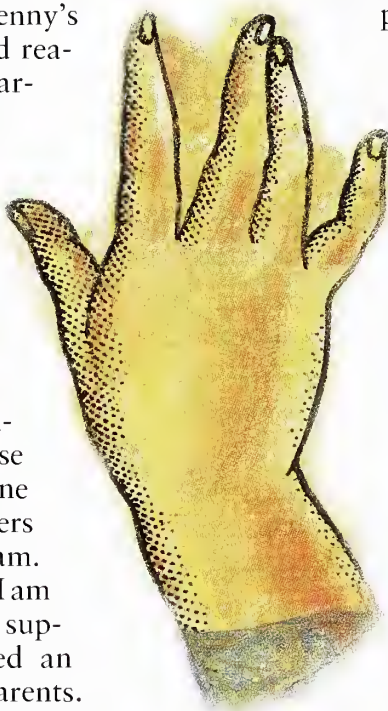
My Daily 'Insulin'

Every day I swallow my tiny little pink magic bullet. A week later, I wake up, and I'm breathing fresh and easy, no longer through a heavy scrim of doubt and fear. I'm not anxious about leaving the house, going to work, taking care of patients, interacting with friends. I have my life back. I have my self back. With an odd sense of jubilation I begin weekly therapy. I tell my

attending that I have a "doctor's appointment." Just as I'm ready to enter the psychiatrist's office, another attending physician walks toward me. I walk on past the door. This behavior will continue for two years.

Therapy is paradoxically exhausting and enlivening. Once a week, that office becomes my haven, my refuge, the place where I don't have to pretend. One afternoon a medicine intern doing her psychiatry rotation passes through the secretary's office where I wait for my appointments to avoid the publicity of the larger waiting area. She says, "Jenie, what are you doing here? You're not a patient, are you?" I stare at her, with no suitable response ready. I am ashamed, defeated, trampled by a demon.

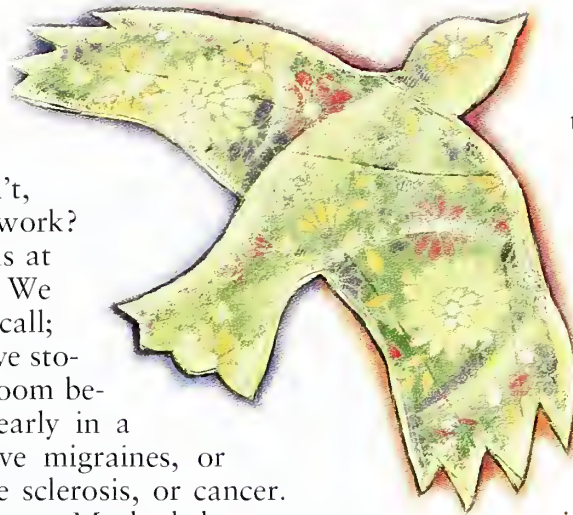
I resent needing my magic pink bullet once a day to tranquilize this monster. But the resentment is always transient. Returning to a state in which being alive is an addictive craving is a stark and wonderful contrast. Some people lack insulin; others lack serotonin. Either way, the missing component needs to be replaced. Every morning, I have my coffee, my muffin, then my little pink insulin. That's how I see it.



Thoughts from the Life Preserver

Two years ago, my friend and frequent study partner from medical school committed suicide. He was funny, cynical, and competent. He smoked Marlboros, rode a beat-up old Honda without a helmet, wore white T-shirts and Levi's. He taught me biochemistry, he watched "Wheel of Fortune" with his patients, and he loved his children. He made me laugh, and he was, without question, the smartest person I knew. But he acted his role even better than I acted mine. After his death, I stopped hiding as I entered the psychiatrist's office. My illness is no longer a secret, an embarrassment, something akin to kleptomania or pedophilia. Depression affects a larger proportion of us than we choose to acknowledge. Our oaths remind us to save our patients at all costs. We need to save ourselves. We need to become each other's patients.

Nearly six years have passed since I flung a head of broccoli at Jenny. I remain on medications and I continue frequent psychotherapy. I am happy, suc-



cessful, loved—and I am a depressive. Do I truly believe that this illness hasn't, on occasion, affected my work? Of course not. None of us is at our best when we're sick. We have all been febrile and on call; many women physicians have stories of running to the bathroom between patients on rounds early in a pregnancy; some of us have migraines, or Crohn's disease, or multiple sclerosis, or cancer. Some of us have mental illness. My bad days are mental URIs: With rest and supportive therapy, they usually pass quickly.

The language of mental illness, however, particularly in physicians, is one of fear and paranoia. A bravado enters our spirits as we train in this profession. The same stamina that keeps us moving on to the next patient when we're coughing up pus and taking acetaminophen every three hours makes us dread being even remotely vulnerable to feeling sad, agitated, anxious, or angry. We see ourselves as immune to all illness, but especially to mental illness.

The threat of chronic illness is even more terrifying. I live with the fear that at some point, a depressive episode could be prolonged, severe, refractory to medication and therapy. Untreatable. My mother had similar feelings about her cured breast cancer. Our patients with coronary artery disease often avoid activity, even after angioplasty, to avoid triggering another event. My depressive cycles are, however, relatively predictable, and Jenny and I have learned to plan accordingly: Our annual vacation to Maine is more enjoyable in late September than in mid-October; tax time is usually bad, and not because of how much I owe the IRS. Isolated bad days are best treated with medication, vigorous exercise, healthy food, and patience.

How many of us have invisibly rolled our eyes when evaluating a patient with chronic symptoms whose leading diagnosis is a mental illness? Sadly, I still catch myself altering my impressions of a patient's symptoms if chronic mental illness is on the list. Chest pain, cough, headache, and fatigue are sometimes minimized in patients with a DSM-IV diagnosis. But schizophrenia, bipolar disorder, and depression do not confer immunity against infection, heart disease, or asthma.

The nonphysician public recognizes mental illness more and more. We see billboards reminding us of the rising yet preventable incidence of suicide. Group

therapy is advertised in the classifieds, and it's almost trendy to have a therapist. We put our pets on antidepressants for separation anxiety. Still, we don't talk about mental illness with other physicians. Those of us with mental illness are as closeted as any other "fringe" group of society, even though we often see ourselves as among the most progressive and accepting groups. We are vocal members of

political parties, we advocate for our patients, we discuss unionization versus the hardships of managed care. We would go to the ends of the Earth to find a cure for cancer, AIDS, diabetes, and ALS. And we would talk about it.

I cannot tread water alone. None of us can. We all need life preservers to stay afloat. My life preservers are Jenny, my psychiatrist, medication. In the doctor's lounge, one, two, or maybe three of you, statistically speaking, are medicated chronically for mental illness. Unfortunately, many more are untreated. We foster the most intimate of relationships with our patients, yet sometimes we are barely aware of our colleagues' guilt over a patient's unexpected death, their teenagers' experimentation with alcohol, the stresses of a strained marriage, a missed diagnosis. We have adopted a "Don't Ask, Don't Tell" policy among ourselves. Mental illness so far exceeds the boundaries of everyday conversation that discussing it seems ridiculous and fantastic.

Having a conversation with your colleague about your mental illness over afternoon tea certainly is not a treatment, nor does it make its occurrence less likely. What such a conversation can do is make these diagnoses less isolating. We always take better care of our patients when we ourselves have been on the other side of the bed. Solitude is a lethal consequence of mental illness. Suicide is a preventable outcome of that solitude.

I am a physician, and I have mental illness. I require medication to maintain physiologic homeostasis. I need intermittent therapy to equilibrate my environmental stresses. I am content, successful, capable. I am any one of us, equally vulnerable, equally susceptible, equally treatable.

Let's talk.

MM

Jenie Smith is a critical care fellow at Hennepin County Medical Center.



From Asylum to Hospital

A CENTURY OF MENTAL ILLNESS

MINNESOTA'S FIRST ASYLUM FOR THE INSANE OPENED NEARLY 100 YEARS AGO. WHILE OTHER STATE HOSPITALS AT THE TIME TREATED PEOPLE WITH MENTAL ILLNESS, THE ANOKA FACILITY WAS CONCEIVED AS A PERMANENT COMMUNITY FOR THOSE IDENTIFIED AS INCURABLE.

AS UNDERSTANDING OF MENTAL ILLNESS IMPROVED, THE ASYLUM BECAME A HOSPITAL AND TEMPORARY RESIDENCE. IN APRIL, THE FACILITY CLOSED AND WAS REPLACED BY A NEW HOSPITAL.

On a warm day in April at the Anoka-Metro Regional Treatment Center, three people gathered in a room in Cottage 8 to discuss their imminent departures. Susan, middle-aged and sweet-voiced, spoke and moved as tentatively as her newly won grip on reality. Gary, 32, talked about his past abuse of drugs and alcohol, because like half of those with mental illnesses, he is also chemically dependent. To control his disease he must stay clean. Paul, 31, is from Texas, sent away by health care workers who knew he could get better treatment in Minnesota than at home. His parents could no longer cope with a son whose life and mind were paralyzed by his ceaseless obsessive compulsion to sanitize his hands and everything he touched.

BY JOSEPHINE MARCOTTY



State Asylum, Cottage No. 1, Anoka, Minn.

COURTESY OF ANOKA-METRO REGIONAL TREATMENT CENTER

Anoka State Asylum, Anoka, Minnesota

These three are among the last people with mental illnesses ever to be committed to this circle of dark Victorian-style buildings called cottages. Built 100 years ago as an asylum to house patients then deemed incurably insane, the center has closed at the end of a century that has seen the treatment of mental illness move through warehousing, lobotomies, bone-breaking electroshock therapy and the modern drugs and social programs that can bring even the most severely delusional person back to reality and function.

Within sight of the old buildings, a new mental health care center, also called the Anoka-Metro Regional Treatment Center, opened last spring. The sprawling \$37 million facility, filled with light and the smell of new construction, boasts basketball courts and a library, double rooms and private bathrooms. It looks more like a college dormitory than a mental institution. Break-away towel hooks, though, are a giveaway. They flip down with the slightest pressure so that patients can't use them to hang themselves.

The transition from asylum to hospital represents the triumphs of the past four decades in both increasing the understanding of mental illness and improving the treatment of those who suffer from it. The new center is a

place where people stay for weeks or months, not years or a lifetime. Mental illnesses may not be curable, but they are treatable.

The evolution has occurred because of two mutually dependent trends: the remarkable advances in medications and the growing insistence by advocates and mental health experts that people fare much better when they live in society rather than isolated from it. The medications can treat the illnesses so that patients can learn to function again, and the support and social programs help them learn how.

This means, for example, that as the old treatment center closes, Susan, Gary and Paul—all of whom are well enough to start their transition back to the community—are moving into a modern Bloomington apartment building with some support from center staff members. It's one of two new transitional residences owned and operated by the center. The other is in St. Paul.

As is the case in supportive housing programs around the state for those with mental illnesses, patients in the transitional residences will live there for several months until they are ready to be on their own. They will cook for themselves, manage their finances, learn to manage their own care, meet with social workers, psychiatrists,

ANOKA-METRO REGIONAL TREATMENT CENTER:

For Minnesotans suffering from serious, persistent mental illness, the new Anoka-Metro Regional Treatment Center can mean a shorter stay in a better place. "This new center's more secure, private, peaceful, and therapeutic environment makes it possible for us to treat patients more effectively and over shorter periods of time," said Michael O'Keefe, commissioner of the Minnesota Department of Human Services.

The \$37 million, 210-square-foot, 150-bed facility, which opened in April, was funded by the 1994 Legislature. The new center, which will serve the eight-county metro area, is the first public hospital for people with mental illness to be built in the state in more than 30 years. Some of the buildings that were replaced dated back to the Minnesota Insane Asylum, which opened in 1900.

Early patients in the asylum sometimes faced

lifelong confinement. In the past 40 years, however, the development of community-based mental health services and new medications has brightened patients' prospects for independent living. The new building, said O'Keefe, supports the center's mission to provide appropriate, individualized treatment so that patients can return to full and productive lives in the community. Two 16-bed transitional residences also opening this year (in Bloomington and St. Paul) can help some patients learn and practice the skills necessary to adjust to community life after they leave the Anoka center.

In contrast to patients at the old facility, who sometimes lived four to a room, patients at the psychiatric treatment center today enjoy more personal space and privacy in one- or two-bed rooms and 25-bed hospital units (there are 150 beds total). Other features at the new center, which has 650 full- and

and support groups. Susan said she plans to cultivate a garden and walk in the park across the street so she can listen to the birds. Gary loves to cook and wants to be able to visit his father, who owns a small business in Bloomington.

After months of treatment, Susan and Gary have both regained a grasp on reality, thanks largely to antipsychotic medications that control their terrifying delusions. "It was a lot like world war," Susan said. "I thought that people were going to shoot me. Poison my food. I had all kinds of really weird thoughts." Paul is taking an antidepressant, but most of his treatment has been cognitive behavioral therapy, which teaches him to think rationally and control his compulsions.

They both say that they are nervous about the move. But what they really fear is a return of their illness. This was the first time Susan had ever had what she called a breakdown, and she says she doesn't know what brought it on or whether it will return. Gary is worried about the temptations of alcohol, and Paul is afraid that his obsessive-compulsive disorder will defeat reason.

Their situations reflect how far medicine and the mental health system have come in a generation. Forty years ago, Paul might have been a candidate for a lobotomy—a surgical procedure, largely discontinued by the early 1960s, in which doctors sliced through tissue in the frontal lobes of the brain (see "Minnesota in the

Age of Lobotomy," page 20). It did make people more docile and less compulsive, but it could damage their cognitive abilities as well.

Fifty years ago, Susan might have spent her life locked in one of the cottages at Anoka along with 100 other women in a space designed for 70. In those days, with only two or three staff members per building and no tranquilizers or other antipsychotic medications yet available, many patients spent at least part of every day in a straitjacket.

Twenty years ago, Paul, Susan, and Gary might have been released from Anoka to find their own way by themselves, without support or care, and they probably would have deteriorated and been rehospitalized repeatedly. "Loneliness and isolation are some of the biggest worries," Susan says of her future. "But we'll be together, and that's positive."

BETTER LIVING THROUGH CHEMISTRY

The rate at which Minnesota's regional treatment centers have emptied since the 1960s is directly related to the introduction of increasingly effective medications.

The first was the antipsychotic Thorazine. Marlene Pritchett, who has worked as a psychiatric nurse and educator at the Anoka Treatment Center for most of her 33-year career, was a student nurse at the institution in the mid-1950s during a study of Thorazine that included

A BRIGHTER FUTURE TODAY



part-time employees, include a secure courtyard that allows patients more freedom to go outdoors; air-conditioning in patient units; and generally a lighter, quieter, and larger space. The campus also includes

the Anoka Chemical Dependency Center, which offers various treatment options for men and women and their families.

(from an Anoka-Metro Regional Treatment Center news release)

12 difficult patients normally kept in seclusion. She remembers the staff's amazement at the change. "Patients were calm, quiet, out of the staff's hair," she said during a recent interview. "The staff joked that they would soon be out of work." But the patients were also lethargic, sleepy, and overly sedate, "and that's an awful way to spend your life," Pritchett said.

Thorazine can produce other significant side effects: low blood pressure that causes the lethargy, as well as dizziness and blurry vision; an unpleasant condition called akathisia, or severe jitters; symptoms that resemble the tremors and rigidity of Parkinson's disease; and loss of motivation. In rare cases, the drug can even initiate breast-milk production in both men and women.

And Thorazine, along with other early antipsychotics that followed, had mixed results: It was completely effective for only 20 to 30 percent of patients, partially effective for 50 percent, and completely ineffective for the remaining 20 to 30 percent. Nonetheless, drug therapy was one of the primary reasons that mental institutions in Minnesota and elsewhere around the country began discharging those once thought incurable. The civil rights movement and legislative changes that made psychiatrically disabled people eligible for welfare programs also were significant reasons.

The population of patients in Minnesota's mental institutions peaked at 11,500 in 1955. By 1970, the

number had dropped to 3,223.

The next wave of advances in medication occurred in the late 1970s and 1980s and dwarfed the previous 50-year history of drug therapy.

Lithium was found to be effective 80 percent of the time in treating bipolar disorder. New antidepressant drugs, such as Prozac and Zoloft, targeted the brain chemical serotonin, believed to affect moods.

And new antipsychotic medications for schizophrenia not only controlled its hallucinations, delusions, and thought disorders—the so-called positive symptoms—but also improved the negative symptoms: loss of motivation and drive, memory problems, and an inability to experience pleasure. Many of them also have fewer side effects, which today are rarer and less severe.

Alan Radke, M.D., now medical director for the Minnesota Department of Human Services (DHS), was a psychiatrist at Willmar's regional treatment center during the 1980s (see Dr. Radke's Public Health Report on suicide prevention, page 42). At the time, he says, the regional treatment centers were filled with patients who did not respond to the drug treatments—about 15 to 20 percent of the total population of the seriously and persistently mentally ill.

As new drugs became available, especially the antipsychotics, Radke saw the population at Willmar drop by half. By 1985 the number of people in all of the state's

regional treatment centers had declined to 1,200, almost one-third that of 1970. This year the number has been halved again, with an average daily figure of about 600, and DHS Assistant Commissioner Elaine Timmer said she fully expects that number to continue to decline.

But at least for the foreseeable future, most of the approximately 3,000 people each year who are temporarily committed for treatment of mental illness—those who are determined by the legal system to be a danger to themselves or others—will reside at the Anoka-Metro Regional Treatment Center.

There the patients' medications will be adjusted or altogether new medications will be prescribed. During the long periods of drug response and monitoring, which can take weeks or even months, patients may undergo nondrug treatment as well: psychotherapy, occupational therapy, and social rehabilitation programs, among others. They vary according to each patient's needs.

YOU GET WHAT YOU PAY FOR

Many mental health experts talk with wonder about the

rapid and dramatic changes of the past 15 years. But in some areas, the changes have been too rapid; many experts agree that the state's community-based treatment system has not kept up.

First of all, no one knows with any degree of certainty how many people in the state suffer from serious and persistent mental illness. Based on epidemiological studies, state health officials estimate that 107,000 adults and children in Minnesota have serious mental and emotional disorders, or about 27 per 100,000 population. But fewer than half of those who need treatment—or about 44,000—receive it, officials said.

Where are the others? Again, no one knows for sure. Timmer said many people with mental illnesses are ineligible for treatment programs because of welfare, income, and Social Security restrictions. Others cope with it in secret or live with relatives, often their parents.

The counselors who answer the phones at Ramsey County's Mental Health Crisis Program are among the first to encounter those who need treatment, and they use the term "basement boy" as a shorthand description of an all-too-common situation. Mona Hoffman, a counselor with the Ramsey program, described this real case to explain it:

A young man graduated from high school, and then, as often occurs with people who have schizophrenia, gradually succumbed to the disease in young adulthood. By the time his parents realized that there was something seriously wrong, he was experiencing religious delusions, sleeping in the basement in a nest made out of a shredded mattress and coming upstairs at night for food.

Eventually, the parents accepted the horrifying reality that the only way they could help their son, who refused to accept treatment, was to use police to forcibly evict him from their home. That way, the county could legally impose treatment on him because he would be unable to care for himself. "He was so shocked," Hoffman says of the son. "He got outside and started to run, and the police had to chase him." He did receive treatment, she says, and is now doing much better.

Advocates say that in order to identify, educate, and treat people before they reach the crisis stage, the system needs more money. Federal, state, and county funds dedicated to mental health care total \$450 million, but that only pays for the people who show up in the system and who are eligible.

Tish Halloran, director of Hennepin County's Mental Health Services, which supports an estimated 25 to 30 percent of the state's mentally ill, said that there is only enough money and staff to help those who are really sick. This means that people who are experiencing early or less severe symptoms are ineligible for many programs or

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that they have to wait until they become really sick or are committed before they can get help.

Appropriate housing, both supportive living programs and affordable apartments, is in extremely short supply. Diane Wright, director of the Supported Living Services program that contracts with Anoka, Ramsey, and Hennepin counties, says that most of the supportive housing programs have waiting lists. Moreover, while they can cope with their clients' mental illnesses, the programs do not have the funding or expertise to deal with many of the accompanying problems, such as other illnesses and chemical dependency.

Insurance and financial rules often conflict, too. For example, many mentally ill people, particularly the elderly, are on Medicare. But that program won't pay for medications outside a hospital setting, and psychiatric drugs cost thousands of dollars a year per patient. Medicaid also imposes complicated rules on what kinds of treatment it will pay for.

And while experts can laud the advantages of care in the community, the community itself is not always so receptive.

Last year, when the Anoka Treatment Center initiated plans to buy and convert a St. Paul apartment building to a group home, the neighborhood erupted with opposition. The St. Paul City Council eventually approved it, but it was a long and bitter fight.

A flier handed out at public meetings by neighbors read in part: "Will your children be safe in their own back yard? Who will be sitting at the other end of the park bench with you? When you are walking around the lake, who is walking behind you and what are they thinking?"

Mental health care workers and community advocates look with longing at the \$37 million used to build the new treatment center and wonder what could have been accomplished if that money had been spent instead in the community. But although "a lot of people differ on this," says Halloran of Hennepin County, there was really no choice. "We need [the treatment center] because we don't have the capability to serve people in the community when they are in an acute situation. And as long as we have an Anoka, we need a good Anoka."MM

Josephine Marcotty, a Minneapolis Star Tribune staff writer, is on a fellowship through the Kaiser Family Foundation to study mental health care.

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WEB SITES

- National Alliance for the Mentally Ill: www.nami.org
- National Institute for Mental Health: www.nimh.nih.gov

MENTAL HEALTH CARE AT ANOKA HOSPITAL OVER THE YEARS

- 1866: First state hospital for the insane built, in St. Peter.
- 1877: Second state hospital built, in Rochester.
- 1890: Third state hospital built, in Fergus Falls.
- 1900: Asylums in Anoka and Hastings open, for "incurables."
- 1909: Legislature decides to make Anoka Asylum an institution for women, with only enough men to do necessary farmwork.
- 1917: Additional "cottages" for female patients completed at Anoka, making a total of 10, plus administration building and auditorium. Number of female patients rises to about 350.
- 1920: Flu epidemic kills 176 patients at Anoka Asylum.
- 1938: Total Anoka Asylum population: 1,413.
- 1943: Dr. Edmund Miller appointed Anoka Asylum superintendent.
- 1946: Total Anoka Asylum population: 1,340 patients, 71 on parole, two escaped. First electroshock machine purchased. Bilateral frontal lobectomies were performed on 15 patients at the University Hospital. Two died, two returned home, while the rest remained at Anoka and showed varying degrees of improvement.
- 1948: Total Anoka Asylum population: 1,400 patients; 1,050 are women. Overcrowding is severe; they live 100 to a cottage, each of which was designed for 70.
- 1949: Restraints and straitjackets are burned on Halloween night in the center of the Anoka campus. Gov. Luther Youngdahl set the blaze.
- 1950: Main Anoka Asylum building becomes a tuberculosis hospital for mentally ill patients with TB.
- 1951: Name changed from Anoka Asylum to Anoka State Hospital.

ADVOCACY ORGANIZATIONS

- Mental Health Association of Minnesota: 612/331-6840
- Minnesota Depressive and Manic Depressive Association: 612/379-7933
- National Alliance for the Mentally Ill, Minnesota: 651/645-2948



Minnesota

IN THE AGE OF LOBOTOMY

**DURING THE 1940S AND 1950s,
LOBOTOMIES WERE FREQUENTLY
USED TO TREAT MENTAL ILLNESS.**

**HUNDREDS OF THESE
OPERATIONS WERE PERFORMED
IN MINNESOTA.**

Psychosurgery, the surgical treatment of psychiatric illness, arrived in Minnesota in 1939 or early 1940 when J. Grafton Love, a Mayo Clinic neurosurgeon, performed the state's first lobotomy at St. Marys Hospital in Rochester. Few details of that event survive, but more is known about Minnesota's second lobotomy, performed by Love on February 27, 1940, at Rochester State Hospital. The patient had been ill for nearly three years with what the hospital's physicians termed "involuntional melancholia." Her surgery went smoothly. "She improved markedly after the operation and in fact was practically recovered and went home and is still at home and well," wrote Magnus Petersen, the hospital's medical superintendent, two years later.

BY JACK EL-HAI



MINNESOTA HISTORICAL SOCIETY

St. Marys Hospital, Rochester, Minnesota, circa 1947

Encouraged by this result, Rochester State Hospital staff authorized lobotomies for 12 more patients in May and June 1942. These patients had diagnoses of dementia praecox (schizophrenia) or involutional psychosis. “We have received requests from the relatives of patients to perform this operation of lobotomy on about 37 patients in addition to what we have already done,” Petersen observed in the hospital’s biennial report. “We do not recommend this operation, but we feel that it is our duty to tell the relatives what is being done in the treatment of mental disease so that they may decide if they wish any certain treatment used.”

With these expressions of ambivalence, Minnesota slipped into the age of lobotomy, a period of surgical intervention in the treatment of mental illness that began in the United States in 1936 and lingered into the late 1970s. Nationwide, between 35,000 and 50,000 people underwent procedures in which the frontal or prefrontal lobes of the brain were cut, burned, or chemically damaged. In Minnesota, more than 500 patients in the state hospital system received lobotomies, and neurosurgeons operated on an unknown number of mentally ill people at Veterans Administration hospitals and private facilities.

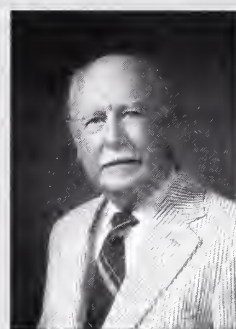
THE ASCENT OF PSYCHOSURGERY

Gottlieb Burckhardt, a Swiss surgeon and psychiatrist, performed the world’s first modern psychosurgeries in 1890, removing parts of the cerebral cortex of six patients diagnosed with schizophrenia. He reported that the patients became more “peaceful,” but other physicians demanded that Burckhardt discontinue the procedure. Forty-five years passed before Egas Moniz, a Portuguese neurologist, began performing brain surgeries on patients after hearing two American physicians describe the calming effect of frontal lobe excision on two chimpanzees. In 1935, Moniz and neurosurgeon Almeida Lima performed the first leucotomy (“white matter cutting”) by injecting alcohol into the fibers connecting the frontal lobes of a mental patient who suffered from paranoia and agitation. The results were inconclusive, and that patient and three others whom Moniz operated on developed sluggishness, disorientation, nausea, and other problems. Even so, Moniz continued his brain surgeries.

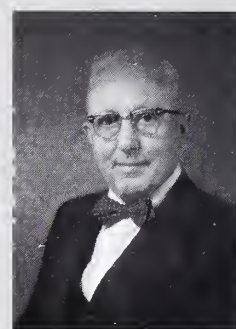
In 1944, Moniz—who coined the term “psychosurgery”—was shot and left paralyzed by one of his psychosurgery patients. Five years later he won the Nobel Prize in medicine for his brain surgery techniques. In 1956, another leucotomy patient attacked and killed him.



Rochester State Hospital, Rochester, Minnesota



J. Grafton Love



Magnus Petersen

LOBOTOMIES IN MINNESOTA

Moniz's work greatly influenced American psychiatrist and neurologist Walter Freeman. Along with neurosurgeon James Watts, his colleague at George Washington University Hospital, Freeman performed the first psychosurgery in the United States in 1936 on a patient with depression. Over the next decade, the Freeman-Watts operation evolved into a procedure in which they drilled two holes in the skull and inserted and blindly swept a blunt blade, called a Killian periosteal elevator, to cut the prefrontal lobes. They called the operation "lobotomy" because it involved destroying nerve cells in the lobes as well as white matter. Freeman believed that severing the prefrontal lobes from the lower regions of the brain would disrupt the passage of nerve stimuli that caused psychiatric illness.

Lobotomy arrived on the scene at a tempestuous time for the nation's mental hospitals. These institutions were filling up quickly with patients, and traditional therapies often had no effect on schizophrenia, depression, obsessive-compulsive disorders, and other illnesses. Mental health practitioners desperately needed new therapies. By 1950, Freeman and Watts had performed 1,000 lobotomies, and the procedure was widespread in the United States. Such well-known figures as film star Frances Farmer and Rosemary Kennedy, sister of President John F. Kennedy, experienced the lobotomist's knife.

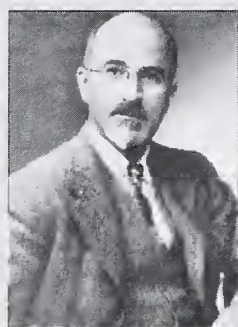
Rochester State Hospital, like other Minnesota state hospitals, faced a serious overcrowding problem. The patient population at Rochester—the hospital mainly treated people with mental illness—climbed from 1,000 in 1900 to 1,352 in 1942 to 1,700 in 1955. The hospital accelerated its lobotomy program, authorizing 514 operations between 1940 and mid-1954. Mayo Clinic neurosurgeons performed the operations for free. "The results have been gratifying in a high percentage of cases," medical superintendent Petersen stated in 1946. "Many of the patients operated on have been out of the hospital several years and are living normal lives as useful members of society. ... Practically all of them would have been doomed to remain in the hospital permanently had the operation not been performed." He estimated that nearly half of the lobotomy patients had been discharged. Four years later, Petersen said, "Many who formerly were violent and destructive have become quiet and pleasant. ... Life has become much more pleasant to them and their relatives."

Petersen and neurosurgeon J. Grafton Love published several articles on the effectiveness of lobotomy in the *American Journal of Psychiatry*, *Minnesota Medicine*,¹ and other journals. Petersen presented a paper on the subject in 1948 at the International Conference on Psychosurgery in Lisbon, Portugal.

One of the Rochester lobotomy patients was L.H., a resident of St. Paul who had first been committed to a state mental hospital in 1936 after a stone-throwing exchange



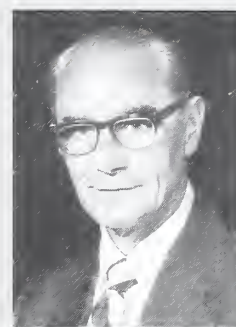
Egas Moniz



Walter Freeman



William Peyton



Lyle A. French

with a neighbor. Her commitment papers listed her neuroses and aberrant behavior: "persecution complex, believes most anyone is picking on her, depressed, recently has become untidy about the house, takes hours to wash dishes, seems to talk to people that are not present."

After a diagnosis of paranoid schizophrenia and a two-year confinement, L.H. returned home for many years. In 1949, however, her condition worsened and she entered Rochester State Hospital. She underwent electroshock therapy, which did not help. Then, at the age of 56, she received a lobotomy and was discharged.

She remained out of the hospital for less than a year. Her husband and neighbors complained that she was irrational, abusive, and lewd. (Lobotomy patients frequently lacked normal inhibitions.) L.H. was admitted to Anoka State Hospital. In 1954, one of her daughters visited her there and was shocked at what she saw: a weeping, unkempt woman whose arms were scarred with cigarette burns from other inmates.

The daughter secretly moved L.H. out of Minnesota and single-handedly cared for her for the next 31 years. L.H. played solitaire constantly, cooked well, watched television with no sound, and greatly feared doctors. She once told her daughter, "I'm not me." The daughter (who declined to be identified for this article) recalls: "She developed a threatening attitude with a butcher knife, so I had to hide the [knives], and if she started toward me, I simply went into the bedroom, bathroom, or near exit until very shortly she was over it." L.H. died in 1985.

'HEAD-HUNTING EXPEDITIONS'

During the 1940s, researchers at the University of Minnesota Medical School were doing their own psychosurgery work. University neurologist William Peyton and others developed a new procedure called lobectomy, which involved removing parts of the frontal lobes, and tested it on 10 to 20 mentally ill patients. "They were trying to quantify how much [of the lobes] to remove to have an effect on the patient's affect," recalls Lyle A. French, a professor emeritus of neurosurgery who served as the university's vice president for Health Sciences Affairs before retiring in 1982. "I don't know that they came to any absolute conclusion."

Although French's research interests ran along other lines, he did perform lobotomies on patients with obsessive-compulsive disorders, at the suggestion of Donald Hastings, the university's chief of psychiatry at the time. "We would make a small incision on the frontal part of the head on both sides," French says. "Then we'd make a hole through the bone and an opening in the membrane over the brain, the dura mater. ... We'd sweep laterally, trying to disassociate the anterior part of the brain on both sides. Patients tolerated the procedure well, and we could do it under local anesthesia." He notes that patients "seemed to be improved, but I was not the one following them for a protracted period of time."

Around 1951, French witnessed a new type of lobotomy surgery that Walter Freeman had introduced only a few years before. Convinced that a simpler operation

was needed to spare expense and surgical and recovery time, Freeman borrowed the techniques of Amaro Fiamberti, an Italian surgeon who had developed a path to the frontal lobes that entered the skull over the eye sockets. Freeman used an ice pick to enter the patient's tear duct, break the skull behind the eyes, and stab into the brain. It all took just a few minutes, required only local anesthesia, and did not demand the skills of a surgeon. James Watts thought this procedure was dangerous and parted company with Freeman.

From the late 1940s to the mid-1960s, Freeman traveled on what one journal termed a "head-hunting expedition" to mental hospitals across the country, sometimes performing a dozen or more transorbital lobotomies in a day. French sat in on some operations Freeman conducted at Hastings State Hospital. "I didn't think much of it," French remembers. "It seemed like it was not an aseptic and sterile technique, and you couldn't really determine what you were doing. He would give patients an [electro]shock just before he did the procedure. It seemed to me that it wasn't a very scientific approach."

Physicians at Minnesota's Veterans Administration hospitals also performed lobotomies. One recipient was Wayne Larson, a native of Sioux Falls, South Dakota, who had a healthy childhood, enlisted in the Navy during World War II, and began showing signs of schizophrenia while on active duty. After his discharge, military police discovered him roaming the streets of San Francisco in a disoriented state. Larson later spent time at veterans hospitals in Texas and South Dakota, where he received electroshock therapy. His nephew, Doug Koons of Minneapolis, recalls him during this time as often agitated and verbally abusive.

Around 1955, at about the age of 29, Larson was transferred to the VA Hospital in St. Cloud, where he underwent a lobotomy. "Dad was told that it was a new surgery that would either cause [Larson] to have seizures and die or be completely cured," recalls Larson's sister, Thelma (who asked that her last name not appear in this article). Instead, the surgery subdued Larson's violent outbursts but also suppressed his desire or ability to



In 1949, Walter Freeman performed a lobotomy as others watched.

CORBIS/BETTMANN

initiate conversation. "When you talked to him, he would respond normally," Thelma says, "but he couldn't make the first effort." Nor could he express emotions.

Koons, who frequently visited Larson at the veterans hospitals and at the halfway houses that later became his uncle's homes, believes the lobotomy helped Larson. "To me, it was a night and day difference," Koons says. "He became the sweetest and kindest man to be around." Koons recalls

one post-lobotomy shopping trip they took together to Kmart. "It was extremely crowded, and because of my memory of his agitation from childhood, I became concerned about his emotional state," he says. "I was about to talk to him about it when he turned, looked at me, and said, 'Doug, how are you doing?' He was reading me, too. The mutuality of that is one of my best memories."

Thelma has different feelings about her brother's lobotomy. Larson died four years ago, a victim of the lung cancer that developed from his heavy postoperative smoking habit, but Thelma says she still cries about Wayne's inability to express his feelings, even when she told him about the deaths of their father and brother. "[The lobotomy] was done with the best of intentions and it did have some worth, but by the same token it took away all of his life," she says.

YEARS OF DECLINE

The development of chlorpromazine and other tranquilizers in the 1950s offered alternatives to physicians who had previously recommended lobotomies for their patients. At the same time, a widening debate about the wisdom and ethics of destroying healthy brain tissue to treat mental illness turned the tide of opinion against psychosurgery.

By the 1960s, psychosurgery was infrequently used but far from extinct in Minnesota. Hooshang Hooshmand, M.D., a neurologist now in private practice in Vero Beach, Florida, remembers participating in lobotomies and leucotomies performed on Rochester State Hospital patients while he was a surgical resident at the Mayo Graduate School of Medicine in the summer of

1965. One patient, a 24-year-old man with Huntington's disease and delusional behavior, vividly stands out in Hooshmand's memory. Before surgery, the patient had the habit of repeatedly shouting, "Who killed the monkey?" After the leucotomy, "he became so manageable," Hooshmand says. "I asked him, 'Who killed the monkey?' and he wouldn't respond for a long time. But finally he looked at me with his beautiful brown eyes and said to me, 'You did, you bastard.' That convinced me that this surgery was shutting off patients. ... It was the greatest lesson I learned from all of my residency and training—never to do this kind of invasive operation."

Rochester State Hospital had become the surgical center of the state hospital system. Between 1968 and mid-1972, five patients diagnosed with obsessive-compulsive disorder received lobotomies there. (One patient also had a "preoccupation with a need to change his sex," according to a memo from Francis A. Tyce, the hospital's medical director.) A lobotomy review committee, composed mostly of Mayo Clinic physicians, issued recommendations on

all patients under consideration for psychosurgery.

C.P., a patient with a very troubled psychiatric history, was one of the people whom the committee approved for surgery. Stricken with cerebral palsy or polio as a toddler, she grew up with paralysis and speech problems that other children ridiculed. Her mother was mentally ill. Depressed, C.P. was admitted to Hastings State Hospital at age 19. Hospital officials judged her of normal intelligence and discharged and readmitted her several times over the next 10 years. When C.P. tried to set fire to her home and grew more depressed, violent, and suicidal, she came back to Hastings, where officials described her as mentally retarded. She set a fire in the facility, killing another patient. By 1972 she had received an amygdalectomy, psychopharmacology, behavior modification treatment, psychotherapy, and electroshock therapy, all without improvement in her condition. Citing the "irresistible impulse to set fires in a person of borderline intelligence (IQ 85) with neurological handicap and psychotic episodes," the hospital gave C.P. a

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prefrontal lobotomy on April 11, 1972.

Two months later, she started two fires in a Rochester State Hospital building. "Due to this renewed fire-setting, the results of patient's operation must be termed doubtful, at least as far as the fire-setting impulse is concerned," hospital officials concluded. C.P.'s ultimate fate is unknown.

As recently as 1978, Rochester's lobotomy review committee was still recommending a few patients for psychosurgery. One patient whom the committee approved for lobotomy in 1977 had been in the state hospital system for 29 years. His "history has been one of undiminished agony and suffering," the committee noted. An Olmsted County judge authorized the hospital to give the patient a lobotomy, although it is not known whether he underwent it.

PSYCHOSURGERY TODAY

Walter Freeman continued to perform transorbital lobotomies long after other doctors had stopped using the operation. His last, done in 1967 in Berkeley, California, ended in the patient's death. Freeman died in 1972; his colleague Watts died in 1994.

After Rochester State Hospital closed in 1982, no other state institution stepped forward to pick up the lobotomy practice. Psychosurgery is not currently performed in Minnesota. In fact, only one institution in the United States, Massachusetts General Hospital, has a

permanent psychosurgery program. The cingulotomy procedure performed there treats obsessive-compulsive disorders and major depression by using magnetic resonance image-guided stereotactic technology to burn lesions in the cingulate gyrus region of the brain. About 10 patients receive this treatment each year.

As for Minnesota's 40-year venture into the age of lobotomy, many psychiatrists and neurosurgeons who participated in it now regard it as a time of poor judgment. "People were sometimes not properly studied pre- and postoperatively," says Lyle French. "The people doing the procedures were not absolutely certain of how much brain tissue they were obliterating." Hooshang Hooshmand puts it differently, citing the effect psychosurgery had on patient behavior and hospital discharges. "The outcome was that nurses and doctors were tickled pink, while patients became bedridden and would die," he says. "It was treatment done to please the caregiver and not the patient."

MM

Jack El-Hai is a Minneapolis writer who contributes to many national and regional publications.

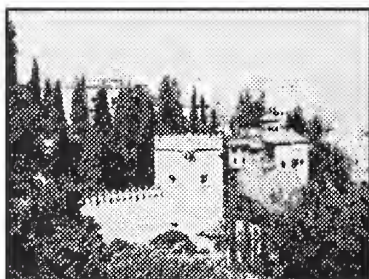
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1. Love JG, Petersen MC, Moersch FP. Prefrontal lobotomy for the relief of intractable pain. *Minn Med* 1949;32:148-57.

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Minnesota Integrated Health Care Initiative

Persons with serious mental illnesses such as schizophrenia, bipolar disorder, and chronic major depression are not well-served by the current fragmented care system. They and their families fall through the cracks between the medical, mental health, and social service systems. The result is unnecessary suffering for patients and families and excessive costs for all of society.

Across Minnesota and the nation, mental health professionals and advocates are discussing the need to integrate services for people with mental illness with other aspects of health care. In Minnesota, the anticipated entry of this population into the managed care sector presents a propitious opportunity to rethink the whole care system.

This article outlines principles for a fully integrated system for persons with serious mental illness, a system characterized by partnership and mutual respect among all the principal stakeholders: consumers, families, medical providers, mental health providers, social service providers, health plans, social service agencies, schools, counties, the civil and criminal justice systems, and the state. The new system would use single, coordinated care plans across all entities, with most services delivered at one site. Funding would be pooled across different care systems, with risk shared by the public and private sectors. The system would measure outcomes and quality to ensure accountability.

We offer recommendations to deal with legislative, operational, and fiscal obstacles involved in implementing a radical overhaul of the current care system.

Problems in the Current Care System

Persons with serious mental illness encounter many frustrations as they traverse the medical, mental health, and social service systems. These care systems generally have different access points, service models, funding sources, financial incentives, and channels of accountability. Negotiating these systems is a daunting challenge for people without mental illness, let alone those who are

ill. To compound the problem, communication and coordination among professionals across the three care systems are hampered by differences in professional “cultures,” by geographical separation, and by the lack of incentive to coordinate care outside one’s own professional setting. In fact, current reimbursement policies create incentives to shift costs from one sector to another. We believe there is a moral imperative to create a better care system.

In the current system, patients’ families often become the de facto care coordinators. This highlights another problem with the current system: the lack of collaboration with and support for patients’ families. Clinicians often relate primarily to the patient alone and do not engage parents and other family members in gathering information and planning treatment approaches. Even rarer are programs that offer emotional and material support for family members who are caring for mentally ill persons. This neglect stems from two factors: the individualistic orientation of traditional medical and mental health systems, and reimbursement policies that do not provide funding for collaboration with families. As a result, families are frequently left out, leading to poorer care, lack of cooperation, more frequent use of emergency departments and homeless shelters, more crisis commitments to mental hospitals, and reliance on jails as the treatment setting of last resort.

The current fragmented care system is also costly. Many individuals with serious mental illness also have medical and social problems. A Minnesota Department of Human Services assessment of community support programs found that 40 percent of these clients also had serious physical health problems.¹ If mental health and social service providers do not take clients’ broader health into account, not only is treatment compromised, but costs increase because of uncoordinated care and patients’ lack of compliance. For example, patients with both schizophrenia and diabetes probably will not follow an insulin regimen if they are not taking anti-

psychotic medications. If the primary care physician is unaware of a patient's mental health treatment, then the physician may offer only routine advice about diabetes self-management, and the patient may develop complications requiring repeated hospitalizations. Similarly, insulin reactions and medical complications of diabetes can make cooperating with mental health treatment more difficult for the patient, leading to costly mental health inpatient treatment. Lack of collaboration between the mental health and medical sectors also increases the financial burden on social services and the corrections system. We believe that fragmented care is inherently more costly care.

Time for a New Vision

Consciousness of the need for a more integrated care system is growing in Minnesota and across the nation. Laws address the need for equal treatment of mental and other medical problems. A number of managed health care organizations are integrating medical and mental health services. The National Committee for Quality Assurance, which accredits managed care organizations, has published new standards calling for integrated care. Prominent organizations, such as the National Chronic Care Consortium, are developing templates for integrating the care across sites and professional domains. Many books, articles, and conferences have covered integrated behavioral and medical care. Several states are finding ways to link health care and social services for persons with serious mental illness. In geriatric care, models for integrated services, such as the coordination of funding and services among health plans, Medicare, and Medical Assistance, are beginning to emerge. And in the medical sector, there are successful integrative programs for illnesses such as Parkinson's disease and diabetes.

As in many other states, policy leaders in Minnesota are debating whether to treat the mentally ill population through managed care. The state is already implementing managed care in Medical Assistance but so far has excluded serious mental illness from the program. (Pilot projects, however, are under way in several counties.) Currently, this population is mostly served under the fee-for-service system, which the Minnesota Department of Human Services has criticized for inflexibility, fragmentation of care, overuse of inpatient services, and cost-shifting between sectors of the delivery system.

A capitated, more integrated managed care model for serious mental illness is clearly on the horizon in the state, but we lack consensus about how the new system might work. What sectors require integration? What structural changes will be necessary? What changes are needed in professional cultures? How can we discourage cost-shifting? How do we create a flexible system for individuals who move in and out of the care system as they are diagnosed, recover, relapse, and recover again? How can the needs and responsibilities of the various stakeholders be taken into account? And how can the clinical system be caring, collaborative, and family-centered while still being operationally and fiscally sound? We do not have

well-developed answers to these questions, but we can offer a vision and recommend guidelines.

We begin with the dilemmas and tradeoffs involved in creating a new integrated care system. Next we offer highlights of our guiding principles and spell out how we would put the new system together.

Dilemmas and Tradeoffs

Traditionally, the more narrowly the target population (the group eligible for services) is defined, the less integrated the service system is likely to be. Individuals typically move in and out of the target population as their functioning changes and therefore in and out of various care systems. For example, persons with schizophrenia might lose access to a social service agency because their functioning temporarily improves beyond the criteria for eligibility.

Another dilemma occurs when specially designated care systems offer funded services. Other provider systems then have less accountability and more incentive to shift consumers into these systems—in other words, bumping patients out of the provider's area of responsibility, say, from a private health plan to the county or state.

The more that high-quality, integrated services are available only to individuals with disabilities, the more trapped some people will be in their disability status, because they fear that admitting improvement will lead to loss of services and less support to prevent a relapse. And the less available high-quality services are at the onset of a mental illness—before disability sets in—the more likely the person will become disabled. Waiting for serious impairment to meet eligibility requirements paradoxically precludes the kind of intensive, coordinated services that may prevent disability.

A fourth dilemma concerns funding predictions. Although nonintegrated, "carved-out" care tends to be fragmented and costly to the overall system, determining funding for specific programs is easier than for fully integrated programs, because the latter do not have a track record to help estimate costs of covered benefits.

Two final dilemmas illustrate the difficulties and tradeoffs involved in trying to improve the care system. Any health plan that is "too successful" in working with serious mental illness runs the risk of being overwhelmed by a disproportionate enrollment of people with these problems. And the more integrated services are under one roof, the less continuity with original providers there will be for a population that sorely needs continuity of care, because patients will have to transfer from scattered providers to an integrated setting.

Design Principles

Following are several principles that guide our vision of a fully integrated care system for serious mental illness.

BUILD A SHARED PHILOSOPHY AND SYSTEM

- Principal stakeholders participate in a common system and philosophy. These stakeholders include counties, the state, schools, social services, health plans,

patients and families, and provider systems.

- Providers, consumers, and the community feel joint ownership of the system. Consumers, families, and advocates are involved in system design, governance, and treatment planning, and in carrying out care plans. The system finds ways to tap the capabilities of the broader community for promoting the health of persons and families dealing with serious mental illness.

- Caregivers build a community of caring—a sense that we're all in this together. Patients and families do not have to wait until problems have become grave to justify getting help. Respect and cooperation characterize the system, including relationships among provider groups.

INTEGRATE CLINICALLY AND OPERATIONALLY

- Single, well-integrated care plans exist across all systems and services, including medical, mental health, and social service. Unified, comprehensive care plans facilitate smooth transition from crisis to recovery to wellness and include health care; housing; vocational, educational, and social skills; and preventive services. A longitudinal disease management model, which focuses on the patient's changing needs over time, is used instead of the traditional episodic "units of service" model. The care team, which includes the patient and family, determines the frequency of contact needed in different settings—on-site, home, neighborhood—for maintaining adequate support and for monitoring treatment side effects and illness-related complications.

- Benefits and services are coordinated. Housing, employment, education, and corrections services are coordinated with medical and mental health services, but are not necessarily provided on-site. Work and expenditures are balanced across the various human services, so that outcomes are improved without disadvantaging one service system.

- Services are integrated at one site. Care is provided or coordinated through a "multiservice center," with "one-stop shopping" and convenient geographical access. When services are not delivered on-site, they nevertheless should be convenient and coordinated. Assertive outreach is an integral part of the care system. This may involve routine telephone contact, reminders, crisis assistance, education, self-help groups, and other support.

INTEGRATE FINANCIALLY

- All stakeholders in the community contribute to adequate funding: patients and families, the state, health plans, counties, schools, social services, federal programs, agencies, corrections systems, human services. The resource pool functions much like a "single payer," with joint financial oversight to manage this pool in a public and responsible manner.

MEASURE OUTCOMES AND QUALITY TO ENSURE ACCOUNTABILITY

- A shared information system is created to track outcomes, quality, and resource use.

Recommendations for Implementing the Vision

In this section, we offer specific recommendations for handling the dilemmas that an integrative system will likely face.

1. Permit risk sharing among health plans, social service plans, and payers. Such risk sharing is necessary to minimize the financial and competitive risks of caring for a population with major needs that currently cannot be estimated, from an actuarial standpoint, in a capitated system. State and local governments will have to facilitate this process among systems with long histories of separate funding.

2. Pursue legislation to fund joint programming by health plans and state and county social service departments.

3. Link incentives for health plans and social service organizations to outcome measures, giving monetary rewards to providers and health plans for successful treatment strategies. These outcome measures should be created by discussions among consumers, families, providers, payers, and health plans.

4. Create community standards for the benefit package, standards of care, process of care, and coordination of benefits so that all the provider systems would operate under the same expectations.

5. Create incentives to prevent individuals from maintaining their disability status just to receive treatment and to prevent the unnecessary shifting of patients into other care systems. A patient and family would receive intensive services for six months after the patient recovers and would continue to receive supportive services when the patient is at risk for relapsing. The Minnesota Legislature recently took a step to reverse the incentive to remain officially disabled by allowing disabled individuals who find employment to keep their medical assistance benefits if they qualify on the basis of income.

6. Create incentives for providing all necessary services to persons newly diagnosed with a serious mental illness, or newly relapsing, to prevent long-term disability.

7. Create a shared "Center of Excellence" among health plans, providers, the state, counties, social service organizations, and consumer organizations to develop workable models, best practices, and promising innovations. In the current system, if one health plan achieves a breakthrough in helping persons with serious mental illness, the new approach is not shared with other, competing health plans. Health plans also face a disincentive to making such a breakthrough known to the public, because they risk being overwhelmed with new subscribers whose care is expensive and complex. We need the pooled wisdom of all stakeholders to serve this population well.

Conclusion

In Minnesota, we face consequential choices. We can either continue to treat mental illness with a fragmented

but familiar care system, one that often burdens patients and families and wastes human and fiscal resources. Or we can develop an integrated system, one based on a partnership of groups across the state. Doing so will require the political and administrative will to overcome the inertia of the current system and the clinical vision to make the new plan work in everyday practice. **MM**

The Minnesota Integrated Health Care Initiative is a group of mental health providers, managed care administrators, government policy staff, family members, and consumer advocates who formed a task force to draft a vision for a fully integrated care system for individuals and families facing serious mental illness. The authors write as individuals and not as representatives of their organizations. The primary author of the paper is William J. Doherty, Ph.D. Other authors, in alphabetical order, are Macaran A. Baird, M.D.; Ronald C. Brand; Dana Fox, Ph.D.; Rachael A. Freed, M.S.W.; Richard L. Heinrich, M.D.; Margaret

*Lunacek; C.J. Peek, Ph.D.; John Scanlon, M.D.; Michael Trangle, M.D.; John Whalen, M.S.; Thomas F. With-
eridge, Ph.D.; and John M. Zakelj.*

A complete copy of the initiative report is available from William Doherty, Family Social Science Department, University of Minnesota, 1985 Buford Avenue,

*290 McNeal Hall, St. Paul, MN 55108.
E-mail:bdoherty@chei.che.umn.edu.*

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1. Minnesota Department of Human Services. Survey of Minnesota Rule 14 and Rule 36 community treatment programs. St. Paul, MN: MDHS, 1990.

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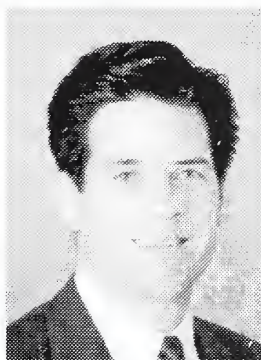
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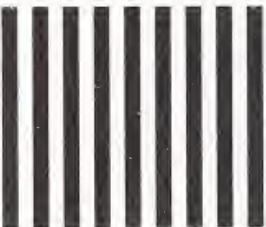
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ANNOUNCEMENTS



Annual Meeting News Coming in November

News about the Annual Meeting, including the announcement of the newly elected MMA officers, will be featured in the November issue of "News & Views."

MMA Expands Web Site

Information on Y2K and education for physicians on end-of-life care has been added to the MMA Web site at www.mnmed.org/ppe/.

MacKenzie Will Be Honored in Dallas

MMA member Ronald MacKenzie, D.O., an anesthesiologist at the Mayo Clinic, Rochester, will be inaugurated October 13 as the 64th president of the American Society of Anesthesiologists, in Dallas.

MacKenzie received a President's Award at the 1999 MMA Annual Meeting (see page 36).

Two Patients' Rights Bills Differ in 'Right to Sue' Details

As *News & Views* goes to press, the U.S. House of Representatives is expected to take up the debate on patients' rights bills H.R. 2723, the Bi-Partisan Consensus Managed Care Improvement Act, and H.R. 2824, the Health Care Quality and Choice Act, and possibly other patients' rights bills. In July, the U.S. Senate passed a patients' rights bill that President Bill Clinton has refused to sign, saying the bill protects insurers and HMOs but not patients.

The Minnesota Medical Association last month sent an alert to its members, asking them to urge their representatives to support H.R. 2723,

also known as the Norwood-Dingell bill. The MMA, following the lead of the American Medical Association, supports this bill because it offers the strongest protections for patients.

Paul Sanders, M.D., MMA CEO, has met with U.S. Rep. David Minge (D-Minn.) to discuss patient protection legislation. Judith Shank, M.D., MMA past-president, and Sanders wrote to the Minnesota congressional delegation asking each representative to co-sponsor the Norwood-Dingell bill.

"This bill provides the patient protections your constituents are demand-

RIGHTS cont. on page 35

MMA Announces Winners of 1999 Awards

Each year at its Annual Meeting, the Minnesota Medical Association presents awards to physicians and distinguished community leaders who have outstanding records of service to the medical community.

Community Service Awards

The MMA presents the Community Service Awards to physicians who have performed significant service to their communities in addition to their practice of medicine. Four physicians were honored with the 1999 Community Service Award: Joseph Duffy, M.D.; Jean Harris, M.D.; Allen Horn, M.D.; and Joseph Leek, M.D.

Joseph Duffy, M.D., served as president and member of the board of direc-

tors of the Rochester Area Council for the Arts. He helped fund the Rochester Recreation Center and promoted local arts events and talent. Duffy has served on many arts organizations in Rochester, including the Mayo Clinic Art Committee, and he was president of the Choral Arts Ensemble of Rochester. Duffy serves on the Minnesota State Arts Board, the board of directors of Art Midwest, and the regional advisory committee of Minnesota Public Radio.

Jean Harris, M.D., is the mayor of Eden Prairie and a member of the Eden Prairie City Council. She has served on many national health care task forces and was a member of the Minnesota

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MMA Helps Find Solutions to Firearm-Related Violence

Every day in Minnesota at least one person is hospitalized or treated for a firearm injury.

To help find solutions to the problem of firearm-related injuries and death in Minnesota, the Minnesota Medical Association participated in a seminar presented by the Minnesota Institute of Public Health (MIPH) Stop Gun Injuries and Death Project.

More than 60 people attended the seminar, "Finding Solutions to Firearm Injuries and Death in Minnesota," which was held in Alexandria. In addition to the MMA, representatives of many private and public health care organizations attended the seminar, including firearm and hunting advocates, children and family advocates, government officials, and representatives of churches, schools, law enforce-

ment, and the media.

Jerry Jaker, director of the Minnesota Institute of Public Health, moderated the seminar. He said he was encouraged that people representing such a broad spectrum of opinion on firearms had come together to find solutions to firearm violence.

"We must take a public health approach to firearm violence that is 'data driven,' that emphasizes prevention, and that has multisector input and action," Jaker said.

The group suggested several solutions to firearm violence, including increasing public education, screening and referring at-risk youth, providing consistent enforcement of existing weapons laws, and standardizing firearm injury and death data collection. ■

Rural Areas Surveyed on Demand for Physicians

Family physicians are in demand in rural Minnesota. According to a new survey, one-third of all physician recruitment outside the Twin Cities metro area is for family physicians.

The annual Minnesota Demand Assessment, a statewide survey conducted and prepared by the Minnesota Center for Rural Health, tracks the number of health care providers being sought in counties outside the seven-county metropolitan area.

The results of the survey indicate that the present demand for 110 family practice physicians in rural Minnesota surpasses the sup-

ply of 85 Minnesota family practice residents graduating in 1999. The other primary care specialties—internal medicine, pediatrics, and obstetrics and gynecology—accounted for another 66 physicians needed in rural areas.

Complete results of the survey are published in the *Minnesota Practice Opportunity Directory*, which is updated and published biannually and distributed statewide to health care providers, residency programs, and medical and nursing schools. For information, call the Minnesota Center for Rural Health, 218/727-9390 or 800/997-6685. ■

MMA Promotes Firearm Safety

The Minnesota Medical Association strongly supports efforts to enhance firearm safety in Minnesota, such as the programs developed by the Minnesota Institute of Public Health (MIPH) Stop Gun Injuries and Death Project.

The MMA has endorsed the MIPH advertising campaign to educate gun owners about the importance of safe firearm storage. The campaign includes posters, brochures, and camera-ready ads that have the printed admonition "Safe gun storage saves lives—because there's no sympathy card sympathetic enough" above a picture of two preschoolers examining what appears to be a loaded gun that they have just discovered in a dresser drawer.

For information on obtaining the MIPH advertising campaign materials, call Jill Heins, MIPH Project Director, 612/427-5310 or 800/247-1303, or e-mail her at jheins@miph.org.

The MMA brochure "Unload It & Lock It" includes crucial safety tips for gun owners and a checklist for secure storage and safe use of firearms. The materials can be ordered by calling Richelle Koski, 612/378-1875 or 800/DIAL MMA (800/342-5662). ■

Medicare Quality Improvement Workshops Will Be Held in October

The Health Care Financing Administration (HCFA) has initiated a nationwide effort to help solve health problems that affect all Medicare beneficiaries. Stratis Health, the Medicare peer review organization for the state of Minnesota, under its Sixth Scope of Work (SOW) contract with HCFA, must implement Medicare quality improvement initiatives throughout the state during the next three years.

During October, Stratis Health is sponsoring a series of workshops that will give health care providers

an overview of the new SOW, including local and national health care quality improvement projects, quality improvement systems in managed care, the payment error prevention program, and other mandated activities such as beneficiary outreach and case review.

The workshops will be held from 9 a.m.–noon on the following dates:

- **Minneapolis/St. Paul**, October 12, Metro State University.
- **Marshall**, October 13, Southwest State University.
- **Fergus Falls**, October 14, Best

Western Hotel.

- **Duluth**, October 19, Miller Dwan Hospital.

- **Bemidji**, October 20, Bemidji State University.

- **Rochester**, October 26, Rochester Community Technical College.

- **Minneapolis/St. Paul**, October 28, Best Western Plymouth.

Three category 1 CME credits are available for physicians attending this workshop. For more information, call 612/853-8541 or e-mail info@stratishealth.org. ■

RIGHTS cont. from page 33

ing,” they wrote. They emphasized that any patients’ rights bill passed by Congress must include a strong definition of “medical necessity,” require an external appeals process, hold health plans accountable for their actions, and apply to insurers regulated by states as well as those that are self-insured. But, at press time, no member of the Minnesota congressional delegation had signed on as a co-sponsor of the bill.

The Norwood-Dingell bill has the support of more than 20 Republican and 40 Democratic co-sponsors. H.R. 2824, also known as the Coburn-Shadegg bill, has Republican leadership support, but it is unclear if the bill can recapture enough of the Republicans who now support the Norwood-Dingell bill to pass.

The Norwood-Dingell bill and the Coburn-Shadegg bill provide similar patient protections. Both bills would allow patients to sue man-

aged care plans for damages over denied or delayed benefits, give all patients the right to an external review of a health plan’s medical decisions, and let external reviewers make the decision about what constitutes “medical necessity.”

Both bills would guarantee greater coverage of emergency services, greater access to specialists, a point-of-service option for patients who want to go to out-of-network providers, and more access to information about health plans’ benefits and rules.

The bills differ mainly in the details of the right to sue provisions. The Coburn-Shadegg bill caps punitive and noneconomic damages against health plans but not damages against physicians or other providers. As a result, physicians could be joined in suits against health plans and become the “deep pockets.” The Coburn-Shadegg bill also would prohibit a lawsuit against a health plan unless an external reviewer certifies that a patient actually was in-

jured and that the health plan’s denial of benefits caused the injury.

Another difference is that the Coburn-Shadegg bill would require patients or families to exhaust all of the internal and external appeals before suing, while the Norwood-Dingell bill would allow them to go directly to court if the patient died or was injured before the appeals were finished.

The Coburn-Shadegg bill does not include the so-called whistleblower provision that is in the Norwood-Dingell bill. This provision would prevent health plans from retaliating against doctors or nurses who advocate for their patients by pointing out problems with the quality of their health care.

HMOs and health insurance groups are adamantly opposed to any patients’ rights bill that includes the right to sue and have attacked both bills, saying they would spur costly lawsuits and more “big government.” ■

AWARDS *cont. from page 33*

Health Care Commission. Recently, she was named to the Medical Alley panel that will engage the community in health care decision making. One of her many accomplishments was establishing the Ramsey Foundation to raise funds for the University of Minnesota. Harris serves on a subcommittee of the Minnesota Partnership for Action Against Tobacco.

Allen Horn, M.D., has served as the mayor of Melrose and on the Melrose City Council, where he took a leadership role in initiating the first annual Melrose community celebration. He has held local, state, and regional offices in the Jaycees and was named one of five outstanding Jaycees in the United States. He also is a member of the Melrose Lions Club.

Joseph Leek, M.D., is vice president of the Duluth-Superior Area Community Foundation and chair of the Rotary Foundation of Duluth. He serves on the boards of Minnesota Public Radio and the Guthrie Theater and is active on the Arts Commission of the City of Duluth.

The President's Awards

The MMA President's Award recognizes outstanding contributions to the medical profession through service to the MMA. The following recipients have volunteered their time and energy to serve on many MMA committees and task forces.

Andrew R. Agee, M.D., is a member of the MMA Committee on Minority Affairs and the Minnesota Medical Business Resources Board of Trustees. He has served on the MMA Long Range Planning and Membership Committee, the MMA Council on Medical Practice and Planning, and the Minnesota Med-

ical Services Corporation Board of Directors.

Lynn L. Ault, M.D., is a member of the MMA Committee on Medical Practice and Planning. He has served as a delegate and an alternate delegate to the MMA House of Delegates and was a member of several reference committees.

Thomas Dunkel, M.D., served as the secretary of the MMA. He was a member and chair of the MMA Committee on Communications and has been a delegate to the MMA House of Delegates.

Theodore L. Fritsche, M.D., has served on the MMA Board of Trustees, as a delegate and alternate to the MMA House of Delegates, and as an alternate delegate to the AMA House of Delegates. He has served on many MMA committees, including the Committee on Ophthalmology, the Committee on Medical Services, the Committee on Professional Liability, and the Committee on Legislation.

Ronald A. MacKenzie, D.O., of Rochester, an anesthesiologist, has been a delegate to the MMA House of Delegates and chaired the MMA Annual Meeting Credentials Committee. He has served on many MMA committees, including the Committee on Administration and Finance, the Committee on Professional Liability, and the Committee on Bylaws, Committees and Membership.

Richard Mulder, M.D., of Ivanhoe, served on the MMA Board of Trustees and as an alternate delegate to the MMA House of Delegates. He has been a member of many MMA committees and chaired the MMA Committee on Professional Liability.

Henry T. Smith, M.D., of Minneapolis, is a member of the MMA Board of Trustees and chairs the MMA Committee on Minority Affairs. He has been a member of the

MMA Heart Committee.

The MMA Minority Meritorious Service Award

The winner of the 1999 Minority Meritorious Service Award is Thomas Day, M.D. Day, a family physician in Duluth, was the first chair of the MMA Minority Affairs Committee and was instrumental in establishing the Minority Affairs Committee of the Minnesota Academy of Family Physicians. For many years, he has worked to promote the health care needs of the Native American population in the Lake Superior area. Day, who is the program director for the Duluth Family Practice Residency Program, developed an elective in Native American health care at the Cass Lake Indian Health Service Hospital. He created a coloring book that is used to inspire Native American children to pursue health careers and a poster to encourage pregnant Native American women to seek medical care early. Day is a member of the national Indian Health Service Medical Advocacy Program. ■

'You Are Gloved'

You Are Gloved is a statewide campaign sponsored by the Minnesota Medical Association Alliance to collect gloves and mittens to give to children living on the Leech Lake and Grand Portage Reservations. New (not used) gloves and mittens may be sent by November 20 to the Minnesota Medical Association, 3433 Broadway St. NE, Minneapolis, MN 55413-1761, or call Karen Tourdot, 612/378-1875 or 800/DIAL MMA (800/342-5662). ■

NEWS DIGEST

*People and places
making medical news*



People & Places

Ronald MacKenzie, M.D., has become the 64th president of the American Society of Anesthesiologists.

Plastic surgeon Robert J. Wood, M.D., joined the medical staff of Gillette Children's Specialty Healthcare in St. Paul on September 1. Dr. Wood will lead Gillette Children's craniofacial team, specializing in the evaluation, diagnosis, and treatment of children with deformities of the cranial and facial skeleton.

Memorial Blood Centers of Minnesota, an independent, locally governed blood center, elected the following individuals to three-year terms on its board of directors: Christopher Clouser, president and CEO of Preview Travel; Tom Mason, editor and publisher of *Twin Cities Business Monthly*; and Kevin Odegard, operations manager of Laidlaw Transportation Services Inc.

Physicians at Regions Hospital in St. Paul chose gastroenterologist Robert Olson, M.D., as chief of staff, and pediatrician Art Beisang III, M.D., as chief of staff-elect. David Dries, M.D., staff surgeon, was appointed director of the hospital's Surgical Intensive Care Unit. Dave J. Grabner, R.N., MBA, joined Regions as vice president of ancillary and support services.

The Center for International Health at Regions Hospital received a Leadership Award with a \$50,000

grant for its best-practices approaches to providing seniors with culturally competent health care. The new award program was developed by SmithKline Beecham and the University of Pennsylvania.

"We started this program because we recognized that the health care and social needs were not being met for local immigrants," said Patricia Walker, M.D., medical director of Regions, in a news release. The Center for International Health is the largest multidisciplinary health care program for refugees, immigrants, and non-native-English-speaking families in Minnesota. More than 5,500 of the patients at the center, which offers primary care, mental health, women's health, pediatrics, and travel medicine services, are 60 years of age or older.


Suburban Radiologic Consultants, Ltd. (SRC) has unified its network of outpatient imaging centers, which includes the SRC Centennial Lakes and Southdale centers in Edina, the SRC Burnsville center, and Suburban Imaging-Coon Rapids, under the name Suburban Imaging. SRC, based in Bloomington, Minnesota, is the Twin Cities' oldest medical imaging group.

Dakota Clinic and Blue Cross and Blue Shield of Minnesota announced that the name of the new hospital and clinic they are building


in south Fargo, North Dakota, will be **Innovis Health**. The name is a combination of the words *innovation* and *vision*. "It is a name that describes who we are today and what we hope to achieve for the future," said Steve Youso, Blue Cross and Blue Shield of Minnesota vice president for health care improvement, in a press release.

Construction of the new hospital and clinic is scheduled to be completed in September 2000. Dakota Clinic is a physician-owned clinic network of 175 physicians in 20 locations throughout northwestern Minnesota and eastern North Dakota. ■

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Socioeconomics

Children's Defense Fund Gets Grant to Help Uninsured

The Children's Defense Fund of Minnesota was one of 47 organizations nationwide to receive a grant from the Robert Wood Johnson Foundation in New Jersey, intended to reduce the number of uninsured children through public-private partnerships. The local Children's Defense Fund plans to use its \$847,977 grant to help poor, uninsured Minnesota children enroll in Medical Assistance and Minnesota-Care programs.

According to an article in the Minneapolis *Star Tribune*, about 70,000 children in this state lack health insurance. The Children's Defense Fund hopes to help about 40,000 of them. "The data is absolutely clear that children with insurance by far have better health outcomes than the ones that don't," said Blanton Bessinger, M.D., director for child advocacy and child policy at Children's Hospitals and Clinics, in the article.

Cargill Donates \$10 Million to Genetics Research at 'U'

In the largest single corporate cash gift ever to the University of Minnesota, Cargill Inc. has given the school \$10 million to build a Microbial and Plant Genomics Institute on the St. Paul campus. As part of the gift, the state Legislature must contribute 50 percent of the proposed \$20 million building.

"This gift could not come at a

better time," university president Mark Yudof told the *Star Tribune*. "It jump-starts research essential to Minnesota and the nation, and it will lead to a more healthful food supply, new drugs and treatments, and new methods for preserving the environment."

Research at the institute would include studying gene sequencing and new applications for it, taking genetic study beyond mapping plant and microbe genomes.

Outpatient Surgical Center Slated for Burnsville

HealthSystem Minnesota (HMS) and Allina Health System announced a joint plan to build an outpatient surgical center in Burnsville, where Fairview Ridges Hospital has been the main provider of hospital services for the past decade and a half. The new center will offer outpatient surgery, medical imaging, and other diagnostic services.

"The population has grown out there and we've had an increase in the demand for our services," John Herman, chief administrative officer of HSM, told the *Star Tribune*. The 30,000 to 50,000-square-foot building is set to open late next year.

InterStudy Competitive Edge HMO Directory Is Available

Interstudy Publications has released *The Interstudy Competitive Edge HMO Directory* (version 9.2), a comprehensive look at the HMO industry as of January 1, 1999, based on data collected directly from HMOs.

The directory data show rising HMO enrollments despite a sharp decline in annual growth rate, from 14.7 percent in 1998 to 6.1 percent

in 1999. Nationally, HMOs have enrolled almost 5 million new members since January 1, 1998.

To order the directory, call 800/844-3351.

PreferredOne Expands Network

Next year, HealthSystem Minnesota's Park Nicollet Clinic, Methodist Hospital, and several related clinics will join the health plan network of PreferredOne, a 600,000-member health plan based in Minneapolis. "Employers and their employees are really looking for access to all health care providers," David Wessner, HealthSystem Minnesota's chief executive, told the *Star Tribune*.

CDC Says Aggressive Anti-Smoking Efforts Work

A report released by the Centers for Disease Control and Prevention (CDC) attributes declines in smoking in Oregon and California to vigorous antismoking campaigns. States that have not launched similar efforts, such as Kentucky, which produces tobacco, have experienced rising smoking rates.

The CDC also advised states on how to spend tobacco settlement money. The recommendation for Minnesota was to spend a minimum of \$28 million a year on antismoking efforts. State officials said Minnesota now spends about \$3 million a year on those efforts, according to an Associated Press story.

Although the adult smoking rate in Minnesota is slightly below the national average (22 percent vs. 23 percent), some 42 percent of high school seniors in the state smoke, compared with the national average of 35 percent. ■



Research & Innovations

MMRF Tests New Gene Therapy

The Minneapolis Medical Research Foundation (MMRF) at Hennepin County Medical Center (HCMC) has initiated Phase I clinical trials to test a new gene therapy in humans that might be able to help the body grow new blood vessels to bypass blocked leg arteries. The trial is intended to determine the safety and tolerability of the therapy for patients with severe peripheral arterial occlusive disease or critical limb ischemia.

Timothy D. Henry, M.D., is principal investigator of the study, which is sponsored by RPR Gencell, the gene therapy division of Rhone-Poulenc Rorer, which works on the discovery, development, manufacture, and commercialization of gene therapy products.

Blood Pressure on the Rise

A Mayo Clinic study found that a sample of residents in and around Rochester, Minnesota, aged 45 and older, do not have their blood pressure under control. Irene Meissner, M.D., a Mayo Clinic neurologist, was the lead researcher of the study, which was published in the journal *Hypertension*. More than half (53 percent) of the random sample of 636 Olmsted County residents were found to have hypertension, mostly poorly controlled. Two out of five were unaware they had it.

The study is "a wakeup call to the public," Meissner said in the Minneapolis *Star Tribune*. She cited

the expense of blood-pressure medications and complacency as possible reasons for the findings. Another possibility is absence of symptoms.

"It's really bad, since hypertension is one of the diseases we know that you can treat and [thereby] prevent disease for sure," Richard Grimm, M.D., a hypertension researcher at HCMC, told the *Star Tribune*.

Gene Therapy May Correct Liver Defect

Researchers at the University of Minnesota and Albert Einstein College of Medicine in New York have found a way to permanently repair a genetic liver disease in lab rats, according to an article in the *St. Paul Pioneer Press*. The defect causes Crigler-Najjar syndrome.

Clifford Steer, M.D., lead researcher and professor of medicine and cell biology at the University of Minnesota, said the technique may suggest ways of fixing other genetic disorders, such as sickle cell anemia and cystic fibrosis.

"It's quite remarkable, and it's very, very simple," Steer told the *St. Paul Pioneer Press*. Traditional gene therapy involves introducing new genes by way of harmless viruses injected into the patient's body. The new genes often miss their mark, however. The new technique, in which molecules bearing the right genetic codes are encased in fat globules, succeeded in delivering the new genes to targeted liver cells (site-directed gene repair).

"We now have a technology to literally rewrite the genetic code," Steer said. FDA approval for experimentation on humans is expected next year.

ACE Heart Treatment Less Effective for Blacks

University of Minnesota cardiologist Jay Cohn, M.D., found in a study of about 1,500 heart patients at veterans hospitals that the same drugs are not equally effective for black patients with heart failure and white patients with that disease. Specifically, black patients responded less well to ACE (angiotensin converting enzyme) inhibitors but responded better to a combination of vasodilators.

Cohn, the author of the study, which was published in the *Journal of Cardiac Failure*, told the *Star Tribune* that the differential effectiveness of ACE inhibitors for treating high blood pressure in the two races has been known for a while, but the difference had not been studied before in heart failure. He said the findings need further research for confirmation.

Mayo Researchers Say Fungus Causes Chronic Sinus Trouble

According to the September issue of *Mayo Clinic Proceedings*, Mayo Clinic researchers now blame most cases of chronic sinus infection on fungus. Thirty-seven million Americans suffer from the infection, which occurs when the body tries to fend off fungus in the nasal passages. There is no treatment for the disease, although some medications are used to alleviate the symptoms.

"This opens the doors to brand-new ways of approaching patients," Jens Ponikau, M.D., a physician in the Department of Otorhinolaryngology at Mayo Clinic, told the *St. Paul Pioneer Press*. ■



Rates, Trends & Data

HIV Infection Rate Is Higher for Black Americans

Research presented at the National AIDS Prevention Conference in Atlanta in late August indicated that blacks disproportionately account for new cases of AIDS in the United States. As reported in the Minneapolis *Star Tribune*, studies show that the infection rate for this minority group is 10 times higher than for whites, even as the number of new cases of AIDS declines nationally.

That trend is especially apparent in Minnesota, where only 3 percent of the state's population of 4.7 million is black, while 33 percent of new AIDS cases and 41 percent of 213 HIV infections reported in 1998 were in black patients. Researchers suggested that overconfidence in treatment may be leading to more instances of unsafe sex.

Teen Drug Use Down

The 1998 National Household Survey on Drug Abuse showed a decline in past-month use of illegal drugs such as marijuana, LSD, and amphetamines by teenagers, from 11.4 percent to 9.9 percent since the previous year. That is the first significant decline since 1992, according

to administration Deputy Director Joseph Autry of the federal Substance Abuse and Mental Health Services Administration, as reported in the *Star Tribune*.

The national survey also found that young adults, ages 18 to 25, had the highest use of drugs, alcohol, and cigarettes of any age group surveyed in the poll of 25,500 people. Locally, a 1998 student health survey at the University of Minnesota showed that 53 percent of freshmen used tobacco. The Minnesota Student Survey conducted the same year showed that 42 percent of high school seniors were smokers in 1998, up from 39 percent the year before. The national rate for this age group in 1998 was 35 percent. ■

Information compiled from the St. Paul Pioneer Press, the Minneapolis Star Tribune, the Associated Press, and news releases.

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The Last Taboo

Talking to Patients about Suicide

About 30,000 people commit suicide each year, but few of us are willing to talk about it. Physicians, however, are in a unique position to prevent suicide and raise public awareness of the risks.

Alan Q. Radke, M.D., M.P.H.

Editor's Note: *Suicide—don't ask, don't tell. I can still remember the 17-year-old cheerleader and would-be valedictorian who lay in the emergency room with 10 people standing around her trying desperately to convince ourselves and the family that she wasn't really dead. That she had just forgotten to lift the garage door before getting into the car to go to school. That unrequited love really only happens in Broadway musicals.*

We have made progress since that episode in 1982, but not enough. This article provides useful, practical information to help every physician assess suicide risk. Read, learn, and practice!

—Barbara P. Yawn, M.D., M.Sc.
Series Editor

In the privacy of our offices, we, as physicians, talk with our patients about the most sensitive, intimate, personal of topics: sex, venereal disease, all manner of bodily functions. Yet there is evidence we avoid asking basic questions that could curb the incidence of the nation's eighth-greatest killer: suicide.

We are not alone. President Clinton, Surgeon General David Satcher, Tipper Gore, and other national leaders have acknowledged our failure as a society to lift what Mrs. Gore has called "one of the last stigmas of the 20th century" surrounding mental illness and suicide. The first, simple directive from these leaders is "Break the silence." As the Minneapolis *Star Tribune* noted in a recent editorial, "If 85 Americans were dying from gum disease every day, you can bet the feds would get cracking. They'd unleash legions of hygienists onto the shopping malls and erect billboards extolling the virtues of dental floss. There'd be no talk about the shame of receding gums and no attempt to keep the epidemic quiet." The piece goes on to fault the federal government for following society's lead in regarding suicide as "unmentionable and unstoppable" and for overlooking the first lesson of public health: If you want to stop an epidemic, you have to talk about it.

Physicians play a critical role in this effort because of

their trust-based relationships with patients. Most people who commit suicide communicate with their primary care physician before they die. Furthermore, most suicidal patients are willing to discuss their thoughts with their doctor if asked. Only one in six clinicians brings up the subject of suicide, however.¹

Physicians shy away from discussing suicide for the same reasons most other people do. First, there is the myth that talking about suicide plants an idea that wasn't there before. The reality is that suicidal people already have the idea. Second, misconceptions about the way suicidal people will appear or present themselves are common. Although untreated depression is the leading cause of suicide, a suicidal person may not always appear particularly unhappy or upset. Indeed, the risk of suicide can be highest when people begin to recover from depression—when they have regained sufficient energy to kill themselves. Another concern for physicians is that if a patient confirms thoughts of suicide, we are not sure what to do next. What steps should we take?

Physicians can better prepare for this situation by: 1) networking with mental health care professionals in your community so you know where to turn if you suspect a potential suicide; 2) studying demographic data on suicide victims, typical symptoms, clinical variables, and triggering events for adolescents and adults; and 3) learning key questions to ask to assess the risk of suicide. These ideas are discussed in more detail below.

Demographic Considerations

Approximately 30,000 suicides occur each year in the United States. About two-thirds are men, tending to be over age 45, white, and separated, widowed, or divorced. Rates for men increase steadily with age and peak after age 75. Rates for women are curvilinear and peak in the late 40s or early 50s.¹

The rate of suicide among young people has risen dramatically in recent years. Between 1952 and 1996, the reported rates of suicide among adolescents and young adults nearly tripled. From 1980 to 1996, the

suicide rate among persons 15 to 19 years old increased by 14 percent, and among persons 10 to 14 years by 100 percent. For people aged 15 to 24, suicide is the third-leading cause of death, exceeded only by unintentional injury and homicide. During the past decade, there have also been dramatic and disturbing increases in reports of suicide among children.²

Suicide rates differ by geographic region, with rates highest in the western United States and lowest in the mid-Atlantic states. Minnesota, with 520 reported suicides in 1995, ranked 38th among the states in suicides per capita.³ For religious reasons, Catholics and Muslims are much less likely than Protestants to commit suicide.

Clinical Variables and Symptoms

In adolescents, a history of drug abuse and behavioral problems is closely associated with suicide. Symptoms in adolescents may include a dramatic decline in school performance, a tendency to become reclusive, and sexual promiscuity.

Psychiatric disorders associated with high rates of suicide include mood disorders, alcoholism, and schizophrenia. However, because not all suicidal persons have been psychiatric patients or are obviously depressed, it's important to look for a full range of symptoms of depression. These include lethargy, change in eating or sleeping habits, loss of interest or pleasure in usual activities, decreased sex drive, feelings of worthlessness, self-reproach or guilt, diminished ability to think or concentrate, slowed thinking or indecisiveness, thoughts of death, suicide, or wishing to be dead. Other factors pointing to an increased risk for suicide in depressed individuals are previous suicide attempts, family history of suicide, extreme agitation or anxiety, enraged behavior, isolation, history of physical or emotional illness, feelings of hopelessness or desperation, and alcohol and/or drug abuse.

Nearly 40 percent of those who commit suicide have alcohol in their bloodstream at the time of death.¹ While a depressed state in and of itself can present a high risk of suicide, when alcohol or drugs are added, the risk rises sharply. Using drugs or alcohol can cause a depressed person to become disinhibited and make bad, spur-of-the-moment decisions.

Triggering Events

For adolescents, the loss of a significant relationship or difficulties in relationships often trigger suicidal thoughts or action. Adults also are affected by the loss of loved ones, as well as poor finances and poor health. Other life changes and traumatic events, including natural disasters, can predispose people to suicide.

Assessing Suicide Risk

For time-pressed physicians, asking patients questions focused on depression and alcoholism can provide a good indication of suicide risk. Questions could include:

- Do you feel down, depressed, or sad?
- Have your friends or family told you that they're

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www.samhsa.gov

Suicide Awareness/Voices of Education
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concerned about you?

- Have your friends or family told you that they're concerned about your drinking or drug use?
- Are you thinking about harming yourself? Killing yourself?

Many patients will answer no to the suicide question, citing reasons such as "I couldn't do that to my family," "I have obligations I must fulfill," "I'm a coward," or "It's against my religion." If you hear a yes or an ambivalent answer, it's time to call a mental health care professional.

A more comprehensive battery of questions designed to help primary care practitioners identify psychiatric disorders was developed in 1995 by Pfizer in association with staff of the New York State Psychiatric Institute. The program, called PRIME-MD*, helps practitioners identify in about a 10-minute interview the symptoms of mental disorders most often encountered in the general population: mood disorders; dysthymia and major depressive disorder; anxiety disorders, such as panic and generalized anxiety disorder; eating disorders; alcohol abuse or dependence; and somatoform disorders. PRIME-MD also offers treatment options, including referrals to psychiatrists or psychotherapists.

If you don't have a mental health care professional working in your practice, you may want to take time to learn more about the mental health services available to your patients under their insurance plans and about your local public mental health center and other mental health professionals in your community.

Fortunately, today we have effective treatments for

depression, alcoholism, and other mental disorders that may put our patients at risk for suicide. But to prevent suicide, it's essential that we diagnose and provide appropriate treatment. Physicians can play a role in this effort by asking patients the

right questions and listening to their answers. In the community, we should be as eager to speak out about depression, alcoholism, and suicide as we are about high blood pressure, diabetes, and heart disease. Physicians enjoy a unique role as trusted

professionals. We can use our status as doctors, parents, spouses, family members, friends, and community leaders to be at the forefront of efforts to prevent suicide. **MM**

Alan Radke is medical director of the Minnesota Department of Human Services.

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*PRIME-MD was developed by Robert L. Spitzer, M.D., Janet B.W. Williams, D.S.W., Kurt Kroenke, M.D., Mark Linzer, M.D., Frank Verloin deGruy III, M.D., Steven R. Hahn, M.D., and David Brody, M.D., and underwritten by an educational grant from Pfizer, Inc. For information about PRIME-MD, write to Biometrics Research Department, New York State Psychiatric Institute, 722 W. 168th Street, Unit 74, New York, NY 10032. Phone: 212/543-5000; Web

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Diagnosing and Treating Bipolar Disorder

Paula Clayton, M.D.

Bipolar disorder is a recurring psychiatric illness with often devastating symptoms of depression and mania. The disorder, which has been described in highly accomplished individuals such as Theodore Roosevelt, Robert Schumann, Vincent van Gogh, and Sylvia Plath, is highly treatable, however. Despite the chronicity of the illness, effective drugs such as lithium have enabled persons diagnosed with bipolar illness to lead productive lives.

Diagnostic Criteria

Bipolar illness has two distinct forms. Bipolar I disorder, previously called manic-depressive illness, characterizes patients who experience episodes of mania and depression or mania only. Any single episode can be manic, depressive, or mixed. The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) gives specific criteria for both mania and depression. A diagnosis of mania does not require a set duration of illness or impairment. For a diagnosis of depression, however, the symptoms must last at least two weeks.

For a diagnosis of mania, the patient's mood can be either elated or irritable. The most common symptoms are grandiosity, racing thoughts, and pressured speech. The patient is also distractible. These symptoms lead to inattention, impatience, inflated self-confidence, grand schemes, excessive spending, impulsive traveling, and reckless driving.

Bipolar I illness occurs in about 1% of the population and is equally prevalent in men and women. Women, however, are more likely to have depressive episodes.

A patient who has mainly depressions and a few hypomanic episodes (the same symptoms as for mania but

without social impairment) would receive a diagnosis of bipolar II, a form much more common in women. These illnesses typically start with a depressive episode.

Thirty percent of patients who have bipolar I illness first experience symptoms as teenagers. In the usual course, episodes of illness are followed by periods of wellness (euthymia), at first punctuated by years but later settling into a pattern that's often seasonal. The depression can become very chronic and unremitting; suicide is the most serious potential consequence. Despite new and successful treatments, about 12% of manic-depressives commit suicide, almost always during the depressive stage of the illness.

Other symptoms of bipolar disorder are delusions and hallucinations. These symptoms are often overlooked, even by psychiatrists. In patients who have mania, the delusions are consistent with their grandiose ideas and schemes but may also be paranoid. In patients with bipolar depression, delusions occur about 20% of the time (consistent with their inappropriate sense of low self-worth, low productivity, feeling of being a burden, and pessimism, e.g., the family is sinking into poverty).

Research has shown that genetic factors play a significant role in the etiology of bipolar disorder. Biochemical, neurophysiologic, and sleep abnormalities also have been reported, but none seems specific to bipolar disorder. It is not known how recurrent unipolar depression, bipolar I disorder, and bipolar II disorder are related. In addition, many studies identify bipolar patients but do not specify whether the patient is in the depressive, manic, or mixed state, much less whether the patient is man-

ic or hypomanic when studied.

Bipolar disorder is a recurring illness. A few people are lucky enough to have only two or three episodes, but the average patient has more than 10. Studies have found that the depressive episodes in bipolar disorder are shorter than the depressive episodes in unipolar illness. Unfortunately, however, some bipolar patients have chronic depressions. Between 15% and 20% of bipolar patients experience rapid cycling, defined as four or more episodes of depression, mania, or hypomania in a year.

Related to these two distinct illnesses is cyclothymia, a condition in which patients have mood swings, but the swings are not as extreme as those in mania and depression. Another related condition is hyperthymic temperament, seen in patients who have recurrent depression. Such patients have baseline personalities that are cheerful and exuberant. They are extroverted, highly energetic, and short sleepers. Unlike the other conditions, which demand treatment, hyperthymia is associated with desirable traits and should not be treated.

Drug Treatment

Bipolar illness is underdiagnosed and undertreated. A 1999 hospital study from a university center confirmed that 40% of the bipolar patients in the study were previously diagnosed as unipolar. Only 38% were taking mood stabilizers on admission to the hospital (96% on discharge). Psychological autopsies on persons who have committed suicide show that the majority of patients who are diagnosed as bipolar are not taking any mood stabilizers.

Psychological treatment cannot be accomplished when a patient with

bipolar illness is in a manic state. The patient will be highly talkative, irritating, sexually aroused, overconfident, expansive, and completely lacking in insight and good judgment. Because of the uplifted mood, the patient will feel no need for treatment and will vehemently refuse assistance. This is particularly evident with respect to a spouse. If in your practice you see a spouse who suddenly becomes extremely derogatory and accusatory toward the partner, consider the possibility of mania. A history of depressive episodes will help you make the diagnosis. Treatment, usually on an inpatient basis, is imperative for a patient with mania.

The best treatment for a manic episode is lithium, the oldest mood stabilizer. Neuroleptics also are extremely helpful for treating mania. How to treat the depression, however, is still open to question. Although most experts agree that it is best to try to avoid antidepressants, or to use them short term, this is difficult to do in practice. The monoamine oxidase inhibitor tranylcypromine has been shown to be more efficacious than the tricyclic antidepressant imipramine. The other MAO drugs, phenelzine and isocarboxazid, also seem useful. Patients need to be on a special diet with these drugs. Clearly, patients do better in the treatment of their depressive episode if they also take a mood stabilizer.

In addition to treatment for the mania and depression, a mood stabilizer is indicated for long-term maintenance. A recent 40-year longitudinal study of bipolar illness found that mood stabilizers and atypical antipsychotics (in this case, mostly clozapine) proved to be the best combination to prevent suicide.

Although perhaps the best known, lithium is not the only effective mood stabilizer. Valproate is another, and a third but less often used drug for stabilizing mood is carbamazepine. These drugs can be used alone or in combination and must be monitored.

Before starting lithium, the patient needs a complete physical, ECG, and thyroid and kidney (BUN, creatinine) tests. After stabilization, lithium levels should be monitored every

six months, and thyroid levels and creatinine levels every year. Unfortunately, this drug has annoying, ongoing side effects, including acne, diarrhea, difficulty concentrating, increased urination, muscle weakness, thirst, tremors, upset stomach, and weight gain. The only long-term concern (besides low thyroid, which is easily treated), however, is kidney dysfunction. If the latter occurs, lithium must be discontinued.

Valproate has side effects that are often better tolerated than those of lithium. For that reason, more patients are now being started on valproate than on lithium. Valproate also causes the fewest side effects in long-term treatment. However, it can have life-threatening effects on bone marrow and liver.

With both carbamazepine and valproate, patients' blood levels should be monitored, and their blood counts and liver enzymes should be checked twice a year. The usefulness of newer mood stabilizers such as lamotrigine and gabapentin, which are also new anticonvulsants, has not been clearly established.

Although patients with bipolar illness should usually be diagnosed and started on treatment by a psychiatrist, many other physicians could adequately treat the maintenance phase of this disorder, particularly if the patient has been stable for a year or more.

Pregnancy and Mood Stabilizers

In a woman who may become pregnant, lithium is the only safe mood stabilizer. Although lithium has been associated with a rare congenital malformation, the decision to discontinue or continue lithium in the event of pregnancy must be made by the patient and physician together. Both carbamazepine and valproate have teratogenic effects and should not be used by women who are trying to become pregnant or who become pregnant. It is important to be aware, however, that the sudden discontinuation of any of these mood stabilizers frequently causes a manic relapse. Discontinuation of a drug must be done gradually over a week or more.

It is also extremely important to consider using low doses of the newer atypical neuroleptics, such as risperidone, olanzapine, and clozapine. Clozapine is probably superior to the other two, but it has more serious side effects and requires frequent monitoring of white blood counts. Electroconvulsive therapy remains a treatment option for both mania and depression and may be the treatment of choice for pregnant women.

Psychotherapy

Bipolar illness frequently has its onset in the teenage years, when much of life is unfolding: completing high school, choosing a college, developing personal relationships, and separating from the family. Because of these often stressful life events, psychotherapy is probably indicated for the adolescent. No specific psychotherapy has been tested on teenagers, although all evidence indicates that behavioral therapies are effective in mild and moderate depression.

For older patients, supportive psychotherapy is indicated. It is important to give patients feedback about current symptoms, identify early symptoms of an episode, help solve problems, and repair relationships damaged by the illness. It is also important to teach patients how to control their symptoms better. For instance, because lack of sleep can precipitate an episode of mania, patients should take additional medication to stabilize their sleep when they are under stress and sleeping less. Changing the dose of a mood stabilizer during periods of stress is not as important as ensuring a good night's sleep.

Patients can also help themselves through self-help groups. The National Depressive and Manic Depressive Association, for example, meets regularly in cities throughout the country and teaches patients how to live with their illness.

Substance Abuse and Bipolar Illness

Substance abuse is a problem in bipolar illness. About 60% of patients with this diagnosis have superimposed substance abuse at some point in their life. Therefore, the use of

alcohol and illicit drugs needs to be examined and monitored. When a patient is not doing well or not responding to treatment, the physician should suspect substance abuse.

Most patients with bipolar illness (about 80%) are able to stabi-

lize their mood and be highly productive. The others, especially those with chronic depression, are severely disabled. Still, they can live outside the hospital for long periods, especially with the help of family, friends, and a knowledgeable,

sympathetic physician.

MM

Paula Clayton is Professor Emeritus in the Department of Psychiatry at the University of Minnesota Medical School.

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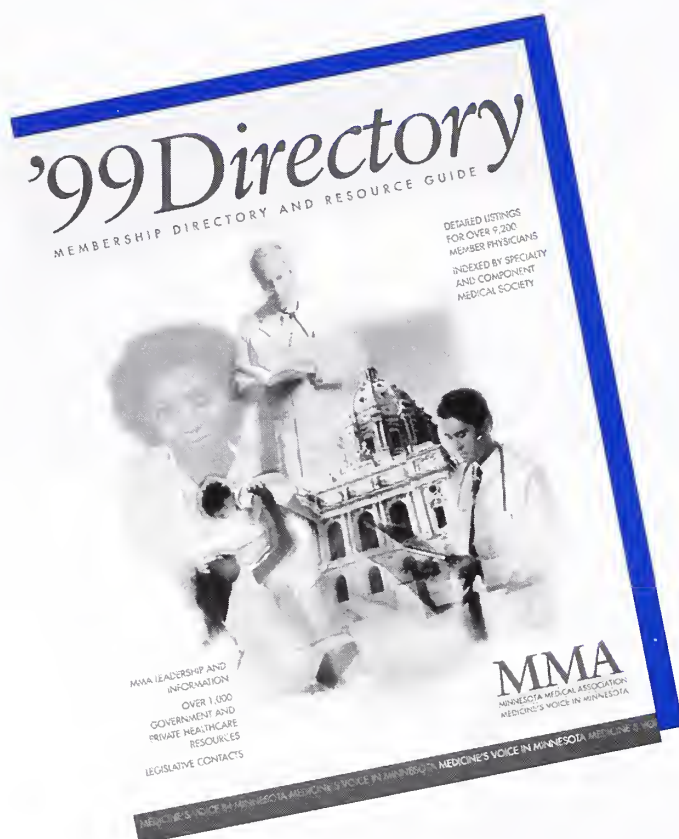
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Mental Illness and Addiction

The Journey Ahead

Insurance companies must do their part to help Americans obtain essential treatment for diseases of the mind as well as the body.

By Senator Paul Wellstone

Mental health care reform is one of my passions in the Senate. As I travel around Minnesota and the rest of the nation, I sense that the public interest in mental health issues is growing, too. There is growing interest in the illnesses of the brain that lead to loss of a job, a home, a connection to community, and to self-abuse and suicide. And there is growing interest in the connection of poor mental health to a variety of other illnesses.

As our society learns more about the brain, brain chemistry, and the ways in which illness can strike the brain, we are seeing more clearly the relationship between mental health and physical health. As a result, our nation has begun to move toward insisting on more humane, dignified, affordable mental health care for all Americans.

Although I have been involved with the mental health community for many years, it is in the last few years that I have seen the greatest change. Family members used to be ashamed or afraid to speak openly about mental illness in their families. The increased public interest in mental health is in part a response to the new willingness of family members to speak out publicly, to stand up in meetings, to meet with their elected representatives, to speak to the media. And, of course, mental health consumers are more willing to speak out about their own illnesses. These family members and consumers have confronted head-on the stigma associated with mental illness. They are helping others see beyond the scary stereotypes to understand the reality of mental illness and the reality of treatment, recovery, and the possibility of a return to a more normal life of work, family, and community.

But we still face many challenges as we tackle mental health reform.

I have identified several problems that need to be addressed legislatively. First is our failure to provide care to the many people who need it. Too many people in our prisons are suffering from mental health problems that

go untreated. Too many juveniles who are still growing and developing and who are struggling with mental illness are locked up and left untreated in our juvenile detention facilities. Too many children who are traumatized by witnessing violence in their own homes are not getting the help they need. Too many women who have experienced domestic violence are unable to get the care they need to handle the mental health consequences of this abuse.

Second is the lack of parity in insurance. Caps are placed on mental health coverage that are not placed on physical health coverage. Health plans and insurance companies need to treat mental health as they do physical health, not as a nonessential extra.

Third, we need to make sure that treatment is affordable. And this means, among other things, addressing the high cost of prescription drugs in the United States compared with their cost in Canada and other industrialized nations. It also means having Medicare cover the cost of pharmaceuticals.

Finally, we must adopt for the treatment of addictions the same standard we use for physical health care. For too long, drug and alcohol addictions have been viewed as a moral issue rather than a disease. Too often, a cloak of secrecy has surrounded this problem, causing people who have this disease to feel ashamed and afraid to seek treatment for their symptoms. We have all seen portrayals of alcoholics and addicts that are intended to be humorous or derogatory but only reinforce the biases against people who have problems with drug and alcohol addiction. I cannot imagine a similar portrayal of someone who has another kind of chronic illness, a heart



problem, or a gene for diabetes.

We now know that some forms of addiction have a genetic basis, yet we still try to deny the serious medical nature of this disease. We regard those with this disease as somehow different from us. We forget that someone with an alcohol or drug problem can look just like the person we see in the mirror, or the person in the adjacent office, or someone in our own family.

Alcohol and drug addictions are painful, private struggles with staggering public costs. A study released in 1998 and prepared by The Lewin Group for the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism estimated the total economic cost of alcohol and drug abuse to be \$246 billion for 1992. Of this cost, \$98 billion was due to addiction to illicit drugs and other drugs taken for non-medical purposes. This estimate includes addiction treatment and prevention costs, as well as costs associated with related illnesses, reduced job productivity or lost earnings, and other costs to society such as crime and social welfare programs. The study also determined that these costs are borne primarily by governments (46 percent),

followed by those who abuse drugs and members of their households (44 percent). According to this study, private health and life insurance companies bear only 3.2 percent of the costs of drug abuse and 10.2 percent of the costs of alcohol abuse.

In addition to the health problems resulting from the failure to treat the illness, there are other serious consequences that affect the workplace, such as lost productivity, high employee turnover, low employee morale, mistakes, accidents, and increased worker's compensation insurance and health insurance premiums. Whether you are a corporate CEO or a small-business owner, you can take simple, effective steps—including providing insurance coverage for this disease, ready access to treatment, and workplace policies that support treatment—that can reduce these human and economic costs.

We know from outstanding research conducted at NIH, through the National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism, that treatment for drug and alcohol addiction can be effective. That is the major finding from an NIDA-sponsored nationwide study of drug abuse treatment outcomes. The Drug Abuse Treatment Outcome Study tracked 10,000 people in nearly 100 treatment programs in 11 cities who entered treatment for addiction between 1991 and 1993. Results showed that all four treatments studied led to reductions in the use of cocaine, heroin, and marijuana. Moreover, treatment resulted in other positive changes, such as fewer psychological symptoms and increased work productivity.

We must move forward now to vigorously address the serious and life-threatening problems of mental illness and drug and alcohol addiction in our country. It is long past time that insurance companies do their fair share in bearing the responsibility for treating these diseases.

All Americans should have the right to this care when they need it. We've made real progress in recent years in this area, but we still have a long journey ahead of us. **MM**

Paul Wellstone, the senior senator from Minnesota, has been a leader in seeking to reform the nation's health care system. In January 1997, President Clinton signed Wellstone's Mental Health Parity Act, legislation Wellstone authored requiring health insurance plans to provide equivalent annual and lifetime coverage caps for mental illness and physical illness covered under the same policy. Wellstone is working to pass legislation that would expand this to virtually full parity for mental health treatment, including office visits, hospital stays, co-pays, and deductibles. He has also authored a bill that would provide for full parity for substance abuse treatment.

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The Health Professionals Services Program

An Alternative for Physicians with Psychiatric Disorders

HPSP offers a way to fulfill reporting obligations and get confidential help for a psychiatric disorder, chemical abuse, or a medical condition.

Kurt Roberts, Ed.D., and Sheila Specker, M.D.

Physician impairment has been a topic of considerable interest to the medical profession in recent years. Beyond obvious concerns about patient care, much of the attention has focused on the responsibility of state licensing agencies to help physicians and other regulated health professionals seek early intervention and appropriate treatment for an illness or condition that may result in their inability to practice safely.

Physicians, like all other members of society, are susceptible to psychiatric disorders. The Minnesota Board of Medical Practice (BMP) recognizes that physicians diagnosed with a psychiatric illness are suffering from a disability—and should not be disciplined in the same way as those who are careless or negligent. As an alternative to the disciplinary process, the Health Professionals Services Program (HPSP) was created in 1994 at the urging of the health licensing boards and professional associations. Physicians and other health care practitioners can fulfill their professional reporting requirements by enrolling with HPSP to document the effective management of their psychiatric illness, chemical health, or medical condition.¹

Although psychiatric disorders are at least as common among physicians as in the general population, little epidemiologic research specific to physicians has been conducted. A study of physicians who received treatment found that the most com-

mon diagnoses were alcoholism, drug dependence, and affective disorders.² Affective disorders may include major depression, bipolar disorder, and dysthymia. In a 1994 study of more than 700 general practitioners, 31 percent of the respondents reported excessive anxiety, 13 percent reported troublesome depression, 61 percent noted exhaustion or stress, and nearly half (48 percent) reported sleep difficulties.³ Six to 10 percent of the general population suffers from an affective disorder at some point.⁴

Health Professionals Services Program

The primary mission of HPSP is to protect the public through early intervention and monitoring of health care professionals who have an illness or condition that may result in their inability to practice with reasonable skill and safety. The program allows physicians and other regulated health practitioners to satisfy professional reporting obligations and get the psychiatric or medical help they need without going through the board disciplinary process, as long as they comply with monitoring expectations. Participation in HPSP is voluntary, although the board may require an impaired physician to enroll to avoid disciplinary sanction or to keep his or her license.

Each participant in the program signs an agreement that establishes a plan to monitor the physician's practice, therapy, medications, and sup-

port groups, along with random urine screens if alcohol or drug use is part of the illness. Individual terms might include counseling and work limitations. Typically, agreements are for 36 months.

HPSP has monitored 264 physicians, with 102 successfully completing the program so far. Of the total number, 36 percent reported themselves to the program and 10 percent were reported by a third party, usually a colleague or employer. The remaining 54 percent were referred by the Board of Medical Practice under a stipulation and order or as a follow-up to an earlier evaluation and diagnosis.

Fifty-five percent of the physicians monitored by HPSP are chemically dependent, with alcoholism as the primary diagnosis. Thirty-four percent were diagnosed with a psychiatric illness; of these, half suffer from depression and one-third from bipolar disorder. The remaining 11 percent were diagnosed with a medical condition that warrants monitoring, such as a neurological disorder.

Special Challenges of Psychiatric Disorders

The purpose of HPSP is to enhance public safety through early intervention, diagnosis, and treatment of health care professionals affected by illness. Some psychiatric disorders, if not well managed, can put physicians and their patients at risk. Many individuals with a psychiatric diag-

nosis may not be impaired, however, and most physicians with such an illness seek appropriate treatment. Not all physicians with a psychiatric disorder require monitoring by HPSP.

Although most physical illnesses can be identified accurately and monitored by HPSP, this is not always the case with mental health problems. The first task is to make the correct diagnosis. Beyond a few basic psychometric tests, treating clinicians must rely on interviews, observation, and collateral data—all of which can be highly subjective. Even the diagnostic classification system of the American Psychiatric Association (the DSM-IV) is continually being changed and refined.

To complicate matters, a variety of medical conditions, such as hormonal disorders and neurological syndromes, can look similar to de-

pression or mania. Bipolar disorders can be particularly difficult to diagnose and treat.

Further problems occur if the physician-patient does not follow medical advice. Poor insight and denial of symptoms are typical reactions for anyone suffering from a psychiatric disorder, including physicians. Shame and guilt are additional roadblocks to appropriate care, as is the feeling of many physicians that they are failing in their responsibilities if they are sick.

Difficulties can also arise when an affected physician informally solicits psychiatric advice or medication from colleagues. Clinical objectivity is too easily compromised and personal feelings may influence medical judgment. In an attempt to be helpful, colleagues may be inclined to treat problems beyond their exper-

tise or may not recognize the need for close professional management.

Some physicians simply do not get the psychiatric help they need, either from lack of awareness or because of the social stigma attached to mental illness. Others try to control their symptoms with alcohol, pharmaceutical samples, or by self-prescribing.

Who Should Be Reported?

Anyone with personal knowledge that a physician may be unable to practice "with reasonable skill and safety" because of an illness may file a report with the board or with HPSP. For physicians, failure to report such information may be considered a violation of the Medical Practice Act.⁵ In addition, any physician suffering from an illness or condition that affects his or her ability to practice

BMP Revises Mental Health Licensure Question

For over a year, the Minnesota Board of Medical Practice (BMP) struggled with the wording of one particular question on its licensure and renewal application form. The question involves sensitive, personal information about a physician's mental health. After a long process of negotiation, the BMP has finally resolved this issue in a manner that is satisfactory to parties involved, including the Minnesota Medical Association.

Last year, the BMP convened a task force to review its licensure application questions to determine whether they are appropriate and nondiscriminatory. The enactment of the Americans with Disabilities Act (ADA), along with pressure from the Minnesota Medical Association, Minnesota Psychiatric Society, and concerned physicians, prompted the BMP to review the forms that physicians must complete to secure and maintain a license to practice medicine in Minnesota. At the same time, physicians expressed concern about the need to avoid stigmatizing individuals with disabilities and to ensure confidentiality of medical records.

The ADA requires that public programs, including physician licensure or license renewal, not deny benefits to qualified individuals with a disability. The MMA, among others, argued that the existing question about mental and physical health may be discriminatory and urged the BMP to amend it. This question asks whether an applicant has ever been diagnosed with certain mental health conditions, including bipolar disorder and schizophrenia. The task force recommended that the question be changed to focus not on particular diseases or conditions, but instead on any resulting impairment that might affect the physician's ability to practice medicine.

Last year, the BMP accepted most of the task force's recommendations but rejected the recommended changes to the question relating to physicians' mental and physical health. At the July 1999 meeting, however, the BMP reversed its earlier decision and adopted substitute language that is acceptable to both the MMA and the BMP.

The question now focuses on the physician's ability to practice medicine rather than on any specific diagnosis or condition. It asks whether the physician, in the past five years, has been advised by a treating physician that he or she has a mental, physical, or emotional condition that, if untreated, would affect his or her ability to practice medicine with reasonable skill and safety. The new wording focuses on impairment rather than singling out certain diagnoses for scrutiny, and it should adequately comply with antidiscrimination laws and protect the public as well as the licensee. The new language took effect in July and will be implemented in all upcoming BMP licensure and renewal forms.

—by Christina F. Rich, J.D.,
MMA associate legal counsel

medicine with reasonable skill and safety must report himself or herself to the board or to HPSP.

Some physicians fear being sued by the person they report. By law, all reports are regarded as privileged data and kept confidential. Anyone who submits a report to HPSP "in good faith" is immune from civil liability or criminal prosecution.⁶ None of the data that HPSP collects concerning physicians, including monitoring agreements, is part of the public record. Nor is this information disclosed to the licensing board unless HPSP reports the participant to the board due to ineligibility or for noncompliance with the monitoring plan. When a participant is discharged from HPSP, all related data are classified as private and released only by written permission of the participant.

Who Should Be Monitored?

Several criteria are used to determine if and how much monitoring is needed. Erratic behavior, especially at work, is one clear indicator. Paranoia, isolation, withdrawal, suicidal talk or gestures, hopelessness, fear, anxiety, an unusually high energy level, or acting out in an angry or abusive manner requires careful assessment. Recent hospitalizations or extended leave for psychiatric illness would also suggest a severity that warrants monitoring.

Although most physician-patients are successfully treated without return of symptoms, some patients do not respond as well to treatment, or they have a progressively debilitating illness such as dementia. The decision to monitor, as well as the specific requirements, depends on the person's diagnosis, psychiatric history, and length of stability.

Another criterion for monitoring is the physician's level of acceptance and insight about the illness, along with a demonstrated history of seeking appropriate care. If, for example, the physician recognizes his or her recurrent depression and gets appropriate treatment when early symptoms occur, HPSP may deter-

mine that monitoring is not necessary. So far, more than 15 percent of HPSP cases were found to be non-jurisdictional because the illness was being managed appropriately.

Summary

By removing the obstacles of social stigma and board sanction, HPSP offers physicians a way to fulfill their reporting obligations and get confidential help for a psychiatric disorder, chemical abuse, or a medical condition. Physicians who are willing to document how they manage their illness can enroll in HPSP for monitoring without board involvement. Physicians are encouraged to learn more about HPSP—for themselves, colleagues, or any health professional licensed in Minnesota—by calling 651/643-2120 or visiting our Web site at www.hpsp.state.mn.us. MM

Kurt Roberts is a case manager for the Minnesota Health Professionals

Services Program. Sheila Specker is an associate professor in the Department of Psychiatry at the University of Minnesota and a medical consultant for the Minnesota Health Professionals Services Program.

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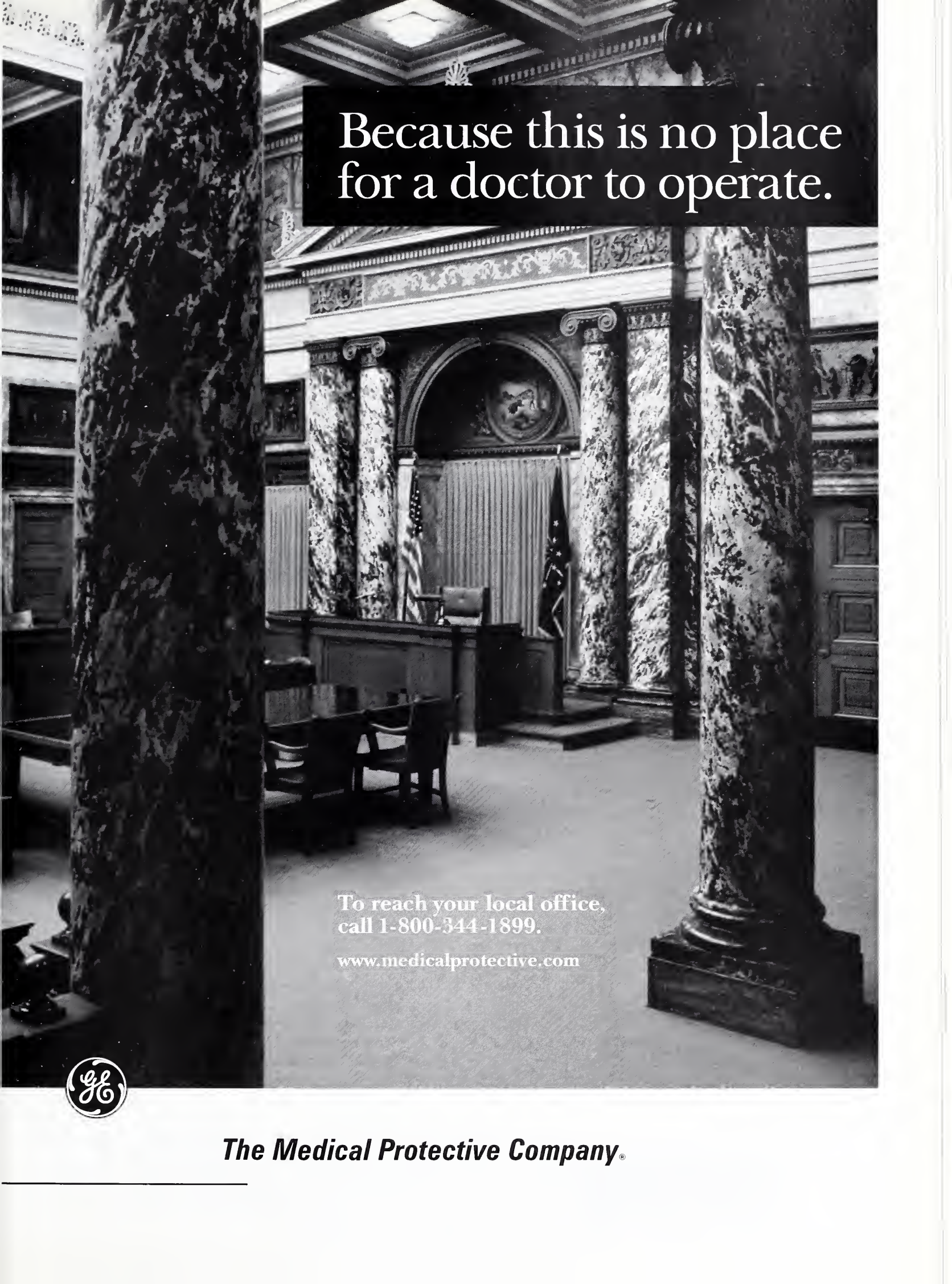
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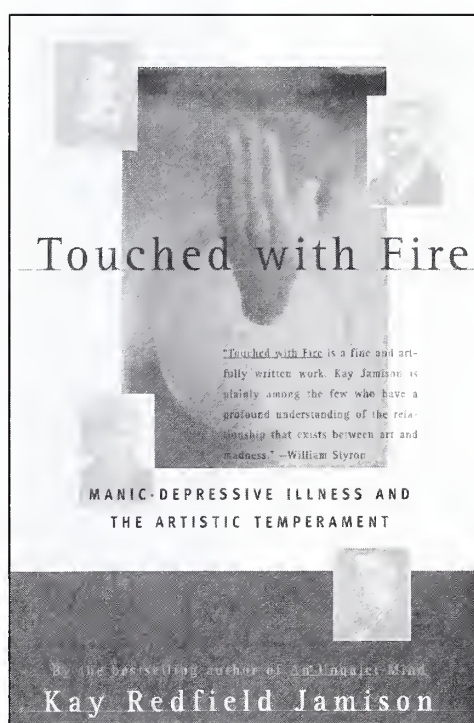
The Mood Disease

Several recent books give personal and scientific insights into bipolar illness.

Reviewed by Charles R. Meyer, M.D.

Like its name, bipolar disorder is a study in opposites and perplexity. Periods of furious energy alternate with days of deadening depression. Exuberance and near-ecstasy alternate with apathy and hopelessness. Outlandishly productive people at the peak of their careers plummet to suicidal depths. People with this disease don't know whether to love it, hate it, or treat it. Their families and friends frequently don't know how to deal with either the ups or the downs. Psychiatrists and other physicians know some ways to treat the disorder, but they don't know how to make sure patients keep taking their medications. And scientists don't know whether bipolar disorder stems more from nature or nurture.

Three recent books provide personal, professional, and scientific insights into bipolar disorder, or manic depression. Johns Hopkins psychologist Kay Redfield Jamison provides a scholarly yet sensitive view of her manic depression in "An Unquiet Mind: A Memoir of Moods and Madness" (Knopf, 1995). She gives us a literary historical tour of artists with mania and depression in "Touched with Fire: Manic-Depressive Illness and the Artistic Temperament" (Free Press, 1996). Finally, Samuel Barondes, M.D., director of the Center for Neurobiology and Psychiatry at the University of California, San Francisco, summarizes the evidence for the heritability of manic depression in "Mood Genes: Hunt-



ing for Origins of Mania and Depression" (W.H. Freeman & Co., 1998).

Ambivalence pervades Kay Jamison's memoir of living with manic depression. Her childhood moods were frightening but "wonderful." Her early mild manias were "absolutely intoxicating states that gave rise to great personal pleasure, an incomparable flow of thoughts, and a ceaseless energy that allowed the translation of new ideas into papers and projects." Later, her manias led to "lost years and relationships that cannot be recovered." Her illness is a tumultuous journey of frantic spending sprees, violent outbursts, and suicide attempts. She is also am-

bivalent about lithium, which she acknowledges saved her life, yet has nagged her with side effects and the unsettling sense that she could be "more" than the drug allowed her to be.

The artists that Jamison features in "Touched with Fire" also love and hate their disease. While conceding the vagaries of retrospective historical diagnoses, Jamison presents clinical, circumstantial, and literary evidence that Samuel Coleridge, George Gordon, Lord Byron, Robert Lowell, Vincent van Gogh, Anne Sexton, and Robert Schumann exhibited symptoms of manic depression. Most of the artists quoted shared her feeling that the pain of depression and delusions is partly mitigated by flights of exhilarating creativity. She explores the role of the irrational in creativity and asks the unanswerable question, "Would these artists have been as great without their disease?" Or does the creative act require a struggle between reality and unreality?

What science knows about manic depression is nicely summarized in the introductory chapters of "Touched with Fire." Jamison endorses the genetic basis for bipolar disorder and displays numerous family trees showing "madness" in the ancestors of her featured artists. Current evidence for the genetic basis of the disease is presented by Samuel Barondes in "Mood Genes." After introductory chapters documenting the history of genetics from Mendel on, Barondes cites twin studies in

which 60 percent of identical twins of people with manic depression also have it. He details an investigation by Johns Hopkins geneticist Janice Egelund of Amish families with a high incidence of abnormal behavior and suicide during the last century. In one pedigree in which 20 percent

of members had the disease, Egelund and others found evidence for a manic depression gene on chromosome 11. In Barondes' DNA-mapping study of a family with a high incidence of manic depression, he concludes that chromosome 18q22-23 most likely contains a "mood gene."

If there is a mood gene, why has it persisted throughout evolution? Barondes suggests that at least hypomania confers some survival advantages: "With it comes optimism, enthusiasm, charisma, confidence, boldness, decisiveness, risk-taking, and the uninhibited thinking that sometimes leads to creative ideas ... useful to the individual but also attractive to others, ensuring social position and reproductive success."

Contrasts everywhere. The same illness that inspires the lyricism of a Byronic verse or the beauty of a Schumann symphony tears families apart and leads its victims to the brink of self-destruction and beyond. Our ambivalence about manic depression may only increase with promised discoveries in molecular biology and reproductive technologies. If future advances in genetics allow mood genes to be identified, will we choose to eliminate or alter the embryo of a future Van Gogh? Our perplexity has just begun. MM

Charles Meyer is editor-in-chief of Minnesota Medicine.

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Medical Director

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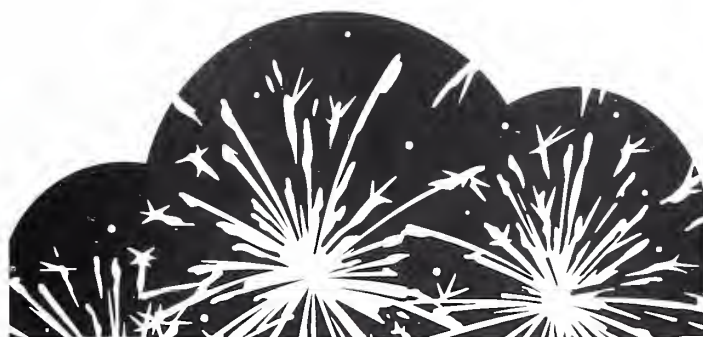
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A Calendar of Continuing Medical Education Courses

Provided as a service of the MMA Committee on Accreditation and CME. For assistance with scheduling meetings or for information on future medical meetings and CME courses, please contact the MMA office: 3433 Broadway Street NE, Suite 300, Minneapolis, Minnesota 55413-1761; 612/378-1875. For a complete listing of our calendar, visit the MMA Web site at www.mnmed.org. Information for each entry is arranged by date; name of program; primary sponsor; location; contact person.

OCTOBER 1999

Oct. 7-8 **26th Mayo Clinic Pediatric Days** Mayo Foundation; Mayo Clinic, Rochester, MN. CONTACT: Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 7-8 **1999 Oncology Conference** St. Mary's/Duluth Clinic Health System; Fitger's Theatre of the North, Duluth, MN. CONTACT: Diane Torvick, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3838 or fax 218/727-8159.

Oct. 8 **Contemporary Issues in Dialysis 1999** Hennepin County Medical Center; Sheraton Inn Midway, St. Paul, MN. CONTACT: Victoria Bowler, 701 Park Avenue, Mail Code 860 D-5, Minneapolis, MN 55415-1829; 612/347-4456.

Oct. 8 **Electrocardiography for Primary Care Physicians** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 9 **Medical Management of the Surgical Patient** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 13-15 **Internal Medicine Review** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Bonnie J. Kohler, University of Minnesota, Office of Continuing Medical Education, 615 Washington Avenue, SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Oct. 14-15 **Obstetrics and Gynecology (30th Annual Seminar)** University of Minnesota; Regal Hotel, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Oct. 14-15 **Annual Forensic Science Seminar** Hennepin County Medical Center; Pillsbury Auditorium HCMC, Minneapolis, MN. CONTACT: Gail Kraemer, 530 Chicago Avenue, Mail Code L 870, Minneapolis, MN 55415; 612/347-7705.

Oct. 14-17 **Seventh Women Physicians' Retreat and Annual Minnesota Women Physicians' Meeting** North Memorial Health Care; Madden's Resort, Brainerd, MN. CONTACT: Suzanne Sem, North Women's Center, North Memorial Health Care, 3300 Oakdale Avenue N, Robbinsdale, MN 55422; 612/520-5244.

Oct. 15 **Perspectives on End of Life Care** HealthEast Office of Research & Medical Education; Bethesda Rehabilitation Hospital, St. Paul, MN. CONTACT: Annette Anderson, 1700 University Avenue West, St. Paul, MN 55104; phone: 651/232-5104 or fax: 651/641-0683.

Oct. 22 **State-of-the-Art: Celebrating a Decade of Level 1 Trauma Care** Hennepin County Medical Center; Pillsbury Auditorium HCMC, Minneapolis, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Oct. 22-23 **Long Term Care** University of Minnesota; Sheraton Inn Midway, St. Paul, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Wash-

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ington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Oct. 28 **Geriatric Care for the Primary Care Physician** Mayo Foundation; Mayo Foundation, Rochester, MN. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Oct. 29-30 **Advanced Life Support in Obstetrics** Hennepin County Medical Center; HCMC, Minneapolis, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

Oct. 31-Nov. 5 **Advances in Diagnostic Radiology and Advanced Radiology Life Support Course** Mayo Foundation; Loews Ventana Canyon Resort, Tucson, AZ. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

NOVEMBER 1999

Nov. 1-5 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

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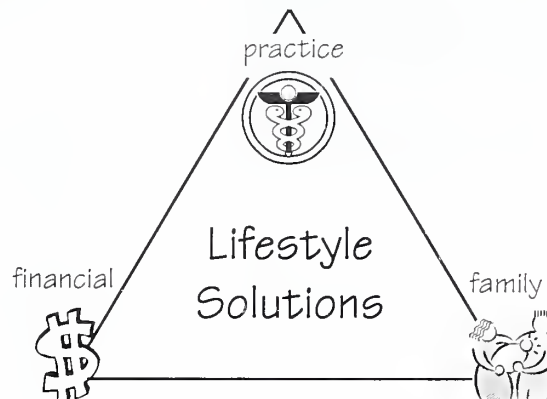
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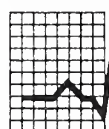
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Cardiology Today <i>Speaker: Willis K Samson, MD</i>	October 12, 1999
Strategies in Primary Care Medicine	October 14 – 16, 1999
Understanding the Workers' Compensation System	November 2, 1999
Cardiovascular Conference	December 9 – 10, 1999
Fitting the Work to the Worker	December 9 – 10, 1999
• Pre-placement Evaluation	
• Advanced Medical Case Management	
Burn Care Today	February 10 – 11, 2000
Family Medicine	March 9 – 10, 2000
OB/GYN Update	April 28 – 29, 2000

In 1996, the HealthPartners Institute for Medical Education (IME) was created to support the ongoing development of excellence in clinical practice through a wide variety of educational services. The Institute has development, coordination and oversight responsibilities for the undergraduate, graduate and continuing education initiatives for health professionals within the various divisions of HealthPartners including Regions Hospital.

FOR FURTHER INFORMATION CONTACT:

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CME

Nov. 2 **Current Issues in Cancer Care** Mayo Continuing Nursing Education; Mayo Clinic, Rochester, MN. CONTACT: Mayo Continuing Nursing Education, Eisenberg S-41, 200 First Street SW, Rochester, MN 55905; 800/545-0357.

Nov. 4-5 **Brain Tumor Conference** University of Minnesota; Cancer Center, University of Minnesota, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Nov. 5 **24th E.T. Bell Fall Pathology Symposium** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Nov. 5 **Eighth Annual Conference for Planners of Continuing Medical Education** Minnesota Medical Association; The Northland Inn, Brooklyn Park, MN. CONTACT: Jane Phillip, 3433 Broadway Street NE, #300, Minneapolis, MN 55413; 612/362-3744 or 800/342-5662.

Nov. 5-6 **Neurology Update & Pain Management Workshop** Institute for Research and Education; DoubleTree Grand Hotel, Bloomington, MN. CONTACT: Kari Haeger, 3800 Park Nicollet Boulevard, St. Louis Park, MN 55416; 612/993-3527.

Nov. 12 **Minneapolis/St. Paul Diabetes Forum** Hennepin County Medical Center; Radisson Hotel and Conference Center, Plymouth, MN. CONTACT: Robin Hoppenrath, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/337-7128.

Nov. 12 **Common Upper Extremity Conditions** University of Minnesota; Sheraton Inn Midway, St. Paul, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Nov. 17-19 **13th Annual Primary Care Update** Institute for Research and Education; Radisson Hotel & Conference Center, Plymouth, MN. CONTACT: Amie Reynolds, Office of Professional Education, 3800 Park Nicollet Boulevard, St. Louis Park, MN 55416; 612/993-3538.

Nov. 18-20 **Annual Orthopaedic and Trauma Seminar** Hennepin County Medical Center; Minneapolis Convention Center, Minneapolis, MN. CONTACT: Claudia Miller, 701 Park Avenue, Mail Code 862-B, Minneapolis, MN 55415-1829; 612/347-4220.

Nov. 19 **New Horizons Primary Care: The Management & Treatment of Breast Cancer** HealthEast Office of Research & Medical Education; Sheraton Inn Midway, St. Paul, MN. CONTACT: Annette Anderson, 1700 University Avenue W, St. Paul, MN 55104; phone: 651/232-5104 or fax: 651/641-0683.

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- 22 Insights & Outlooks '99**
PRESENTED BY: St. Paul Heart Clinic
LOCATION: United Hospital Conference Center, St. Paul, MN
- 27 Principles of Diabetes Management: Basics & Trends**
PRESENTED BY: Allina Health System
LOCATION: Unity Hospital, Fridley, MN
- 29 1999 Front Line Neurology Symposium**
PRESENTED BY: Allina Health System
LOCATION: Sheraton Metrodome, Minneapolis, MN

November 1999

- 4 - 6 The Scientific Basis for the Holistic Treatment of Chronic Disease**
PRESENTED BY: University of Minnesota
LOCATION: Earle Brown Heritage Center, Brooklyn Center, MN
- 11 Advanced Diabetes Management: Complications and Trends**
PRESENTED BY: Allina Health System
LOCATION: Cambridge Medical Center, Cambridge, MN
- 11 Dementia: Your Role in Early Identification**
PRESENTED BY: Allina Geriatrics Work Team and Alzheimer's Association
LOCATION: Earle Brown Heritage Center, Brooklyn Center, MN
- 12 Dementia Treatment, Management & Research: Preparing for the Age Wave**
PRESENTED BY: Allina Geriatrics Work Team and Alzheimer's Association
LOCATION: Earle Brown Heritage Center, Brooklyn Center, MN
- 19 Sister Kenny Institute Annual Fall Conference**
PRESENTED BY: Rehabilitation Services of Allina Hospitals and Clinics
LOCATION: Abbott Northwestern Hospital, Minneapolis, MN

For more information contact:
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Nov. 19 **Emergencies in Primary Care Conference** St. Mary's/Duluth Clinic Health System; Best Western Edgewater East Conference Center, Duluth, MN. **CONTACT:** Catherine Koski, Medical Education Coordinator, 400 East Third Street; Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3854.

DECEMBER 1999

Dec. 3 **International Health at the Dawn of the Millennium** University of Minnesota; Windows on Minnesota, Minneapolis, MN. **CONTACT:** Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.


Dec. 3 **Expanding the Promise of Stem Cell Transplantation** University of Minnesota; Ernest Memorial Convention Center, New Orleans, LA. **CONTACT:** Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Dec. 3 **Symposium on Obstetrics and Gynecology** North Memorial Health Care; North Memorial Health Center, Robbinsdale, MN. **CONTACT:** Kate, North Continuing Education, 3500 France Avenue N, Suite 102, Robbinsdale, MN 55422; 612/520-1570.

Dec. 6-10 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; Inter-

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national Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Dec. 10 **8th Annual Family Practice Update** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

JANUARY 2000

Jan. 10-14 **Bone and Tissue Tumors** Mayo Foundation; Maui, HI. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

FEBRUARY 2000

Feb. 5-12 **HealthEast Winter Medical Seminar 2000** HealthEast; Melia Azul Ixtapa, Ixtapa, Mexico. CONTACT: Annette Anderson, 1700 University Avenue West, St. Paul, MN 55104; phone: 651/232-5104.

Feb. 24-26 **Mayo Clinic State-of-the-Art Symposium: Arrhythmia Management** Mayo Foundation; Silverado Resort, Napa, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

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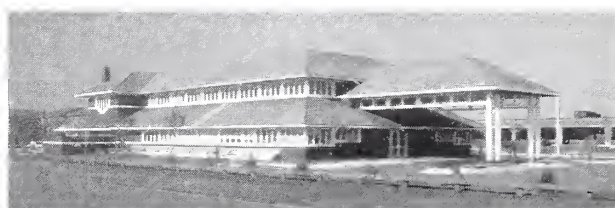
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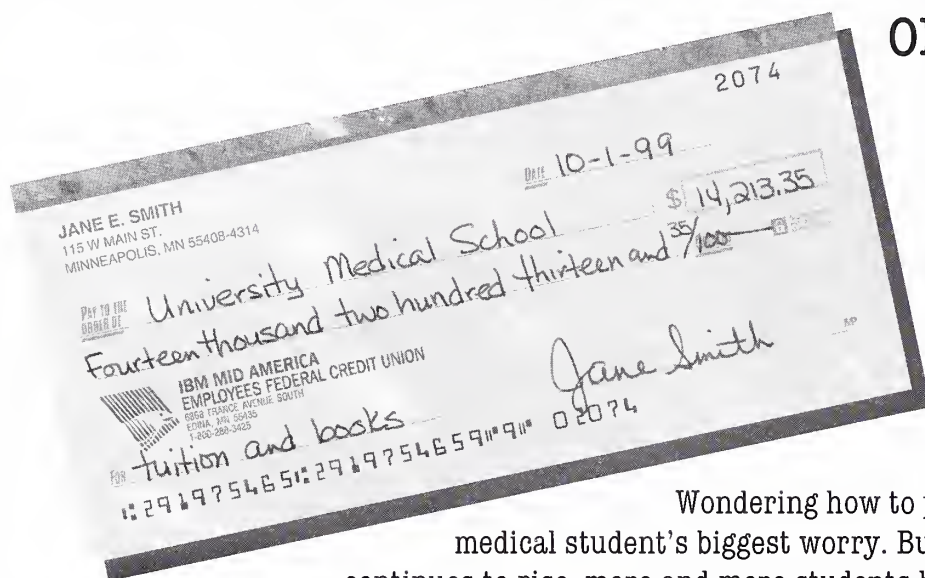
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Passive Voice: The Sequel

James Kaufmann, Ph.D.

As you'll recall from last time (August 1999), a verb is in the active voice if the subject carries out the action: "Various agents may cause unregulated cell growth." Conversely, if the subject is acted upon, the verb is in the passive voice: "Unregulated cell growth may be caused by various agents."

Why All the Fuss?

You wouldn't think that a verb form as natural as the passive voice would cause such a commotion among writers and editors, especially when it has the perfectly legitimate use of calling attention to what was done, as opposed to who did it. Indeed, the methods section of a research article, if written largely in the active voice ("we did X... then we did Y... finally we did Z"), would quickly prove tiresome.

"Be direct" is the principle that the passive voice risks violating. One way to be direct is to put the actor and the action in the subject and verb positions, respectively. Hence, it is more direct to say (using the active voice), "A laboratory technician extracted genomic DNA from blood leukocytes" and "The technician used a denaturing system to screen for mutations" than (using the passive voice) "Genomic DNA was extracted from blood leukocytes by a laboratory technician" and "A denaturing system was used by the technician to screen for mutations."

In a methods section, however, the emphasis is on the action, not the actors. Because the passive voice

moves the actors out of the prominent subject position (and a subsequent deletion can eject them from the sentence) and concentrates on the actions done, it is understandably the voice of choice. So, in a methods section, one typically finds sentences such as "Genomic DNA was extracted..." and "A denaturing system was used..."

Perhaps because the use of the passive is unassailable in a methods section (and perhaps because it seems to convey scientific objectivity), writers often use it indiscriminately elsewhere. That's when problems with indirectness are more likely to show up.

Time for a Story

In the June 2, 1999, issue of *JAMA*, researchers reported that androstenedione, a precursor to testosterone often used by athletes as an alternative to anabolic steroids, did not make study subjects stronger and may predispose users to cardiovascular disease and certain cancers. This research was the subject of an Associated Press story that appeared in the Minneapolis *Star Tribune* the same day. Here's how the texts compare, in terms of verbs. Active voice: journal article, 30 percent; newspaper story, 78 percent. Passive voice: journal article, 42 percent; newspaper story, 13 percent. Other verbs (linking, intransitive): journal article, 28 percent; newspaper story, 9 percent.

The comparison is not entirely fair, of course, and I would certainly

not advise medical professionals to adopt the writing style of newspaper journalists. But these writers do know how to be direct.

Some Things You Can Do

It doesn't take long to go through something you've written and highlight the passive-voice verbs. Do that; then see which ones you can revise or eliminate without compromising the focus of the sentence or the paragraph. Many passives you will let stand. That's fine. But some will seem to have occurred by a kind of "passive reflex" action and can be easily revised. An obvious candidate for revision would be a sentence like "Serum testosterone concentrations were unaffected by androstenedione supplementation." Other changes will require more imagination, and guts. Why not change "If plasma volume is assumed to equal..." to "If plasma volume equals...?" ("If" implies hypothesis or assumption, making the passive redundant.) You may even find an entire paragraph written in the passive voice. See whether you can revise a few of its verbs. It's easy to do, it will make your writing more direct, and you'll be proud of your progress.

Next Time

By now, you've had enough of this (or: enough of this has been had by you). In December, something else. **MM**

James Kaufmann is director of the Office of Communications, Hennepin Faculty Associates, in Minneapolis.
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- 61 **Understanding Boys' Violence** Reviewed by David Walsh, Ph.D.
Psychologist James Garbarino examines a complex subject in "Lost Boys: Why Our Sons Turn Violent and How We Can Save Them."

Getting 'Tough' on Violence

Before this year, Littleton, Colorado, could have been a stumper in a geography bee. Overnight, this all-American suburb became an icon for a disturbingly American trend: school violence. School-

yard shootings in Oregon, Arkansas, Mississippi, and Kentucky created a macabre litany of young lives wasted and families devastated that left our nation asking, "Why?"

Stephen England, M.D. (see page 6), went to Washington, D.C., to look for answers. James Garbarino, Ph.D., in his book "Lost Boys: Why Our Sons Turn

Violent and How We Can Save Them" (review, page 61), searches for explanations. Both would agree that the answers are labyrinthine and the solutions elusive, but the commitment to change must be resolute.

Is school violence a problem of societal violence, youth violence, or male violence? Yes. Rooted in frontier individualism, America's violent soul has been a cultural cliché that remains true today. Statistics document the violent-crime monopoly of 15- to 30-year-olds and indict males as the major perpetrators of those crimes.

But the demographics don't answer why. The why lurks in the marrow of American history and culture, the nature and nurture of American adolescents, and the "problem" of the American male.

Americans like their heroes tough, if not mean. We idolize Wayne and Stallone. We cheer Butkus and Lott. We elect generals and even wrestlers. And we keep asking for tougher and bloodier behavior. The killings in Cagney movies seem sanitized compared with the explicit and gory deaths in Tarantino films. And the once-shocking "damns" and "hells" of Harry Truman are kidtalk next to the in-your-face rhetoric of Ventura and Limbaugh.

Adolescents have always scared society. Well before Bernstein's Jets and Sharks,

street gangs terrorized neighborhoods in 19th-century New York and Philadelphia. The dangerous brew of raging hormones, perceived invulnerability, reckless risk-taking, and anti-authority rebellion has always made teenagers a volatile group. Add semi-automatic weapons, and Littleton emerges.

But violent crimes in major U.S. cities are declining and, as we report on page 9, youth violence is dropping, too. Are the school shootings just aberrations of these trends, or is there another explanation?

How about men? Homicidal violence is a "guy thing"; road rage, domestic abuse, and homicide are overwhelmingly male crimes. Explanations have ranged from testosterone to the Y chromosome to Freudian frustrations. What seems clear is that we have encouraged generations of men to be brawny athletes, authoritarian executives, and controlling spouses.

In her new book, "Stiffed: The Betrayal of the American Man," feminist Susan Faludi identifies the "masculinity crisis" as a peculiarly post-WWII phenomenon stoked by WWII fathers' failing in their personal interactions with sons who feel that they have failed to equal their fathers in accomplishment. During the 1950s, Faludi says, these failed sons went on "periodic rampages" that "always seemed to go unchecked."

"Inherent in their behavior," she writes, "was the assumption that this was their birthright—to be imperial bullies over their miniature dominions." Today, Faludi says, "Manhood is defined by appearance, by youth and attractiveness, by money and aggression, by posture and swagger and 'props,' by the curled lip and flexed biceps, by the glamour of the cover boy and by the market-bartered 'individuality' that sets one astronaut or athlete or gangster above another." In short, an anger-breeding setup for frustration.

While it certainly doesn't explain the why of Littleton, the frustration of the American male is a big piece. We need a new definition of maleness, with wisdom replacing brawn, cooperation replacing authoritarianism, and nurturing replacing control.

.....
—Charles R. Meyer, M.D., Editor-in-Chief



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Stupid Aorta! The Perils of Passive Voice

James Kaufmann's "Just Write" column on excessive use of the passive voice in medical writing (August 1999) addresses a well-known, often decried tendency. However, he missed (or at least was a bit passive about) a critical point. In the passive voice, the object becomes the subject and the subject (conveniently) disappears. "I clumsily (stupidly, negligently) jammed the trocar into the aorta" magically becomes "the aorta was inadvertently entered." Stupid aorta! Substituting "we" for "I" is a similar means of evading personal involvement or responsibility in the guise of dispassionate scientific objectivity. Older scientific literature used the active voice more frequently and is much more interesting because of it. It pulls the reader into the action like a good story, which it is.

G. Richard Geier Jr., M.D.
Olmsted Medical Center
Rochester, Minnesota

Editor's Note: See also "Passive Voice: The Sequel" in the October 1999 *Minnesota Medicine*, page 72.

Name Is Offensive

I regret that our Latin American surgical team was referred to as the "Traveling Medical Banditos" in "Grand Rounds: Minnesota Physicians on Vacation" (August 1999). That is certainly not our name and, in fact, I am sure our neighbors and friends to the south would take offense at this name. We do not have an official name, and all volunteers who make these trips pay their own expenses and

use their vacation time to serve the less fortunate.

M. Michael Menzel, M.D.
Anesthesiologist
Abbott Northwestern Hospital
Minneapolis, Minnesota

A Compassionate Call

I found Dr. Tor Shwayder's article "Call of the Loon" (August 1999) most moving. The children described are afflicted with a horrid condition, and the compassion that Dr. Shwayder and his colleagues show in taking them camping, etc., is inspiring to us all.

I shall remember this facility and mention it to young people who I think would benefit from the opportunities that Camp Discovery provides.

Myer Leonard, D.D.S., M.D.
Head of Oral Surgery
Hennepin County Medical Center
Professor of Oral and
Maxillofacial Surgery
University of Minnesota

The ABCs of Cystic Fibrosis

A recent editorial¹ in *Minnesota Medicine* addressed the emergence of combined internal medicine/pediatrics residency programs as the fastest-growing primary care discipline in the country. The authors describe years of experience with the program at the University of Minnesota.

Combining the two programs makes perfect sense, since many seriously ill young patients survive into adulthood, thanks to new treatment modalities.

Internists often encounter cystic fibrosis, a congenital, fatal, multi-system disease. A mnemonic for

recalling this disease is:

ABPA (Allergic Bronchopulmonary Aspergillosis)
Bronchiectasis
Cor pulmonale
Diabetes mellitus, secondary to pancreatitis
Expectoration
Failure to thrive
Gallstones
Hemoptysis
Infertility
Jaundice
Key for survival: heart and lung transplant
Liver cirrhosis
Meconium ileus
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Offer genetic counseling and prenatal diagnosis
Pneumonias, particularly Pseudomonas and Pneumothorax
Quality of life is affected
Rectal prolapse
Sweat test for Sodium chloride is diagnostic: Sodium > Seventy mEq/L; chloride > Sixty mEq/L. Seventh chromosome abnormality is diagnostic.
Thirty-one is the life expectancy; one in Thirty-one is a disease carrier.
URTI (sinusitis) frequent
Venulitis, cutaneous
Whites mostly affected

Arsad A. Karcic, M.D.
Internist

Nassau County Medical Center
East Meadow, New York

Reference

1. Sidwell AB, Kamal DM. The combined internal medicine/pediatrics residency. *Minn Med* 1999;82(1):22-3.

OPERATING ON POLICY:

Dr. England Goes to Washington

**As a White House Fellow,
St. Paul surgeon Stephen England
got an inside look at the
way things work in Washington.**

Getting from a St. Paul OR to the nation's capital may be a short hop by plane, but politically it's quite a journey. Stephen P. England, M.D., traveled that distance to gain hands-on experience creating federal policy, including helping establish a \$12 million grant program for schools to deal with violence. Last year, England, an attending staff surgeon at Gillette Children's Specialty Healthcare, traded his scalpel and scrubs for the laptop and power lunches of a Beltway policy wonk.

England was one of 17 people selected from hundreds of applicants to the yearlong White House Fellows program, which provides gifted Americans with firsthand experience in the day-to-day business of government. He was the only physician in a group that included a ballet dancer, a Legal Aid attorney, and a U.S. Navy commander. Fellows were put to work in different departments, with assignments on everything from Y2K, Medicare, and Internet technology to biohazard issues and the financial crisis in Brazil. Their work often appeared in the *Washington Post*, England recalls. In other words, White House Fellows were immersed in key national issues.

England spent the past year at the Department of Education, an unlikely assignment for an orthopedic

By Miriam Karmel Feldman

surgeon. But as he reflects on his recently completed "tour of duty," it becomes clear that the job was a perfect fit. England, 38, spent most of the past year hammering out the details for a program that deals with school violence.

He is no newcomer to violence. "My training corresponded with the rise of handgun injuries in the U.S.," England says, referring to his years as a resident at the Hospital for Special Surgery in New York City between 1987 and 1991. This had to be an eye-opener for someone who grew up in St. Paul's genteel Highland Park neighborhood, where England attended high school before entering the University of Minnesota.

During his residency, England developed an interest in public health, which he saw as a way to move beyond what he calls "just the surgical side of sewing people up and sending them on their way." When his residency ended, he headed to Johns Hopkins University, where he earned a master's degree in public health. He spent the next five years establishing himself as an orthopedic surgeon, working primarily with children with disabilities. He also lectured on the public health aspects of violence in America.

This was the path that led England to the Safe and Drug-Free Schools program in the Department of Education. The program was designed to make schools safer by encouraging mentorship programs and reforms such as reduced class size. But in the wake of school shootings in Jonesboro, Arkansas; Paducah, Kentucky; and Springfield, Oregon, the Clinton administration expanded the program's agenda to include violence.

England met with officials from the cities where school shootings had occurred, hoping to learn what is

needed following such cataclysmic events. By the time he left the White House, he had helped establish a \$12 million grant program for local school agencies trying to cope with the immediate aftermath of violence.

England also worked on a prevention initiative that created a \$350 million fund to encourage communities to seek ways to make schools safer. "School safety isn't just an education or law enforcement or mental health issue," England explains. "It's a collective community issue." Typically, the problem has been approached in piecemeal fashion, with each entity applying for its own funds. The prevention initiative rewards cooperation and joint solutions.

As a White House Fellow, England put in long hours, and the work wasn't always glamorous. But he would encourage young doctors with an interest in public service and health policy to consider applying. Though England is single, he says a number of the participants balanced family and work quite well.

After a year in the heart of bureaucracy, England came away with a respect for those who implement social policy at the highest levels. And he disagrees with anyone who says that Washington insiders are out of touch with the rest of the country. "They're very attuned to what's going on, not disconnected. They're not just throwing money at a problem that is complex," he says. "They really try their



PHOTOGRAPH BY JOHN NOLTNER



As one of 17 White House Fellows, Dr. England, second row, far right, tried his hand at policymaking in the Education Department.

best to find out how things happen in the real world.”

In fact, learning how to tap into the Zeitgeist was another component of the program. Over the course of the year, the White House Fellows lunched with more than 200 leaders from the public and private sectors and academia. They traveled to Miami, Atlanta, Chicago, San Francisco, and New York, where they met with city officials to discuss the economy, urbanization, and violence. There was also a three-week trip to Thailand, Vietnam, and Cambodia to examine such issues as globalization and trade status.

Fellows are expected to return home better prepared to serve their communities and professions. England hopes that another project he worked on in Washington, the Children's Health Insurance Program, will allow him to serve as a liaison between Gillette and uninsured families. He also has an ambitious plan to begin a health sciences charter school. “The things I learned about class size, teacher quality, safety, and curriculum development will help in getting a health science-based program for kids in the Twin Cities who are interested in health fields,” he explains.

Schools are still largely safe, England says. “You wouldn't know that by reading the newspaper. The public perception is that they've become appreciably more dangerous. But with the exception of multiple shootings, overall school-related deaths are down.” The

most common issues for schools, according to England, are truancy, discipline in the classroom, and petty theft. On the other hand, he doesn't discount school violence. Shootings such as those at Columbine have become more frequent in the last two years, he says. “They are new. It is worrisome.”

Despite his many interests, England remains committed to his medical practice. “I didn't mean to stop practicing surgery,” he explains. “It was kind of like a gear shift to accelerate what I know and what I can contribute.” Besides, medicine is a family tradition. His father, Rodney Wayne England, M.D., is an internist at HealthEast in St. Paul, and his brother Michael, a general surgeon, is chief of staff at St. John's Hospital in St. Paul.

England says he was happy to return this fall to his home near Lake of the Isles in Minneapolis and to rejoin his colleagues at Gillette and the University of Minnesota, where he is assistant professor of Orthopedic Surgery.

And he was looking forward to picking up a scalpel again. Would that be hard after a year away? Not at all, England says. “It's kind of like riding a bike.” **MM**

Miriam Karmel Feldman is a freelance writer in Minneapolis.

Violent Behaviors Are Declining Among U.S. Youth

Despite the common public perception that youth violence is worse than ever, national surveys reveal a decline in the percentages of students who report participating in violent behavior, according to an article in the August 4 *Journal of the American Medical Association*.

Researchers at the Centers for Disease Control and Prevention and colleagues report on their analysis of national representative data from four Youth Risk Behavior Surveys (1991, 1993, 1995, and 1997). The researchers found that the percentage of students in grades 9 through 12 who report engaging in violence-related behaviors, such as fighting and carrying a weapon, declined between 1991 and 1997.

Some of the study's findings include:

- Carrying a weapon such as a gun, knife, or club anytime during the past 30 days decreased from 26.1 percent in 1991 to 18.3 percent in 1997.

- Participating in a physical fight during the past 12 months decreased from 42.5 percent in 1991 to 36.6 percent in 1997.

- Carrying a gun during the past 30 days decreased from 7.9 percent in 1993 to 5.9 percent in 1997, a relative decrease of 25 percent.

- In 1993, 1995, and 1997, the percentages of students carrying weapons and fighting on school property were far lower than the percentages of students engaging in those behaviors in general. "This suggests that, although recent events have focused national attention on school violence, violence among adolescents is a more generalized problem," the authors write. "School violence may be viewed as a reflection or extension of youth violence in the larger community."

- Compared with female students, male students were 7.7 times more likely to have carried a gun, 5.3 times more likely to have carried a weapon, and 2.2 times more likely to have been in a physical fight.

—Adapted from an American Medical Association news release.

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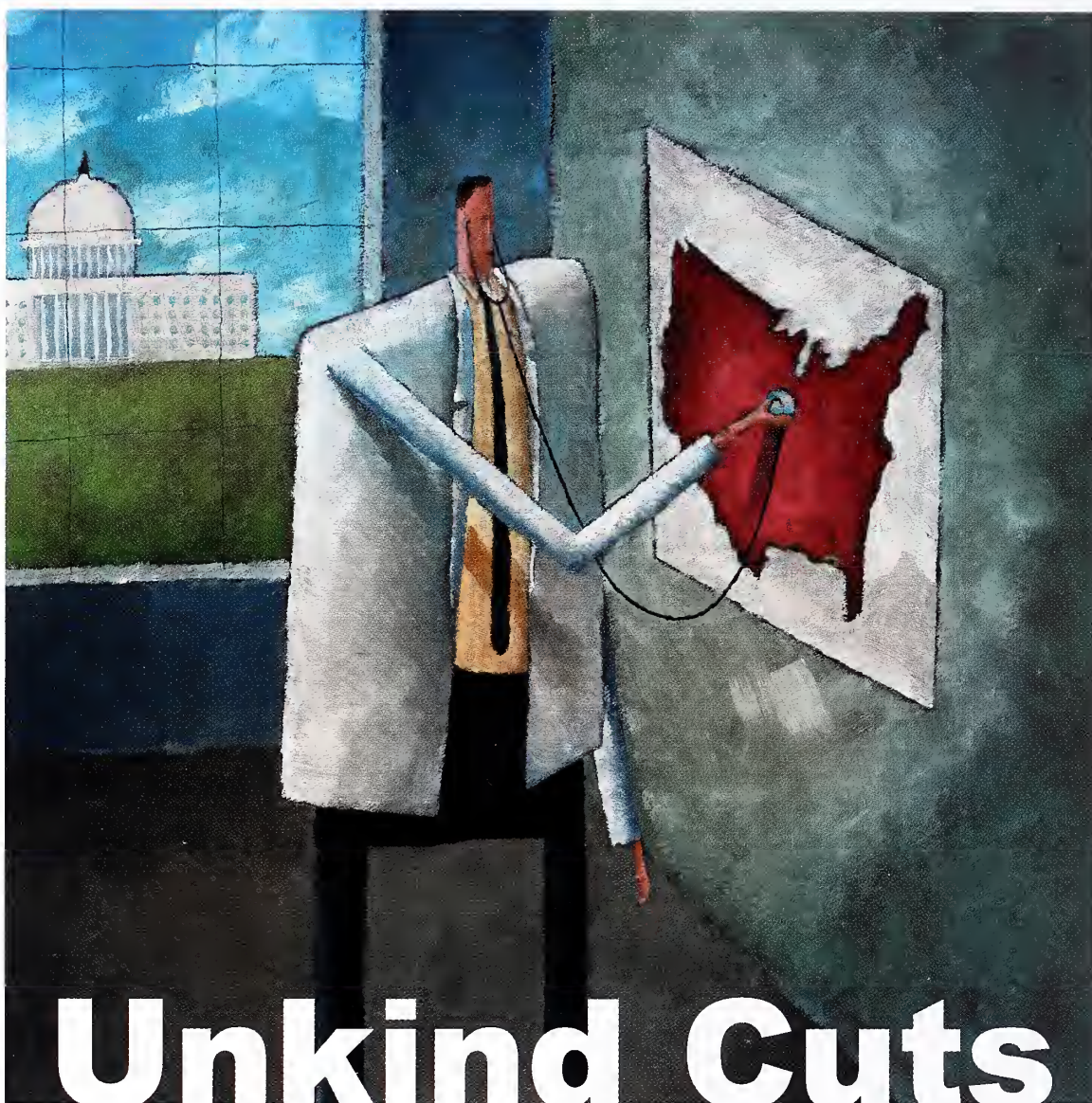
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Unkind Cuts

Inequitable reimbursement rates, high drug costs, and limited access

By Rep. David Minge

Minnesotans are strong believers in fairness. Both my wife, Karen, and I were raised in medical families in rural Minnesota, and we were taught that quality health care should be available at an affordable price to all Minnesotans. Rural Minnesotans should have access to the same quality of care as those who live in the Twin Cities or in other states, and the costs should be comparable for all patients. Reimbursement rates for physicians and other health care professionals also should be equitable and reflect the cost of medical care. As Congress moves forward with Medicare reform this year and next, we must remain focused on these core principles.

Current Medicare and Medical Assistance reimbursements to providers have not kept pace with the cost of quality health care. Inequitable reimbursement rates threaten the high standard of care that patients have historically received. As all physicians know, patients with private insurance subsidize the care for older patients who rely on Medicare, and for the disabled and lower-income people who use Medical Assistance, forcing providers to shift costs to make ends meet and keep standards up.

But many providers, especially in rural areas, have a dwindling base of working-age patients who carry private insurance. As the population in rural Minnesota continues to age, and as fewer young people stay in their hometowns to raise a family, the percentage of Medicare and Medical Assistance patients will grow faster than the population as a whole. Minnesota's hospitals, especially in rural areas, will be hard-pressed to survive unless we can undo the draconian cuts to Medicare made under the Balanced Budget Act of 1997 (BBA97).



Hospital Insurance budget was just under \$1 billion. The 1966 projection for the Part A budget in 1990 was about \$9 billion. However, the actual expenditure in 1990 was \$66 billion. The inaccuracy of our early predictions is particularly dramatic over the long term, but Medicare spending has frequently exceeded even near-year estimates.

Clearly, without an overarching framework to reduce all federal spending, the federal government would have continued to run massive deficits that build up the debt and further saddle future generations with costly interest payments. Reducing the rate of increase in Medicare spending was a significant component of the BBA97 agreement. Although most of us share the goal of balancing the budget, placing arbitrary dollar caps on treatment will threaten patient care. Arbitrary caps limit home health care, hurt skilled nursing facilities, restrict important outpatient services, and reduce the overall quality of

care. Unfortunately, the Health Care Financing Administration (HCFA), which funds Medicare, instituted even more drastic cuts than required under BBA97, nearly double the required savings. This is not the correct approach, and I have urged HCFA to reverse some of those cuts.

Flawed Reimbursement Policy

Thousands of health care professionals nationwide are pushing Congress to rescind some of the damaging cuts to Medicare reimbursements to hospitals. My office has received hundreds of postcards and phone calls urging us to reform current reimbursement rates. Most express particular concern about rural communities that could

to managed care must be addressed through Medicare reform.

In a sense, Medicare is a victim of its own success. Seniors today are living longer, more productive, and healthier lives because of the quality of medical care they receive. As a result, they use the system much longer than was anticipated, inflating costs. For example, in 1966, when Medicare was established, the program's Part A

lose their only health care facility, forcing patients to travel longer distances to clinics or hospitals, making it more difficult for family members to join them. One provider in my congressional district, Swift County Hospital of Benson, was forced to go so far as to appeal to voters to pass a local tax increase to keep the hospital

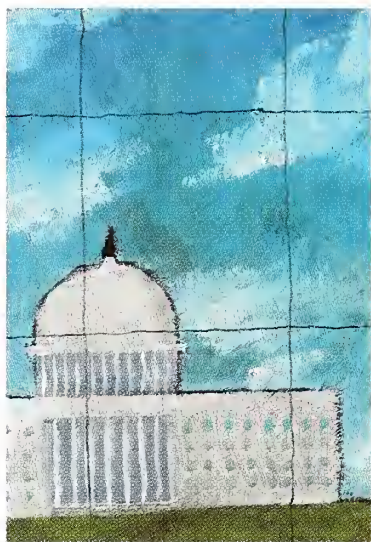
open. Physicians concerned about medical education, medical research, and urban health care facilities also have contacted me about needed changes to BBA97.

I have joined a vocal coalition of representatives and senators who are working to correct the serious failings of our Medicare reimbursement policy. I have cosponsored numerous bills to correct the problem, and I have repeatedly and aggressively pushed the U.S.

Department of Health and Human Services and HCFA to address the arbitrary impact of the payment system and budget cuts. I currently co-chair the Provider Reimbursements Working Group, a division of the Congressional Rural Health Care Coalition, which has conducted meetings and briefings on these issues for members of Congress and their staffs. We must change course on this policy.

Regional Inequities under Medicare+Choice

Another necessary piece of any Medicare reform plan is a remedy for the regional disparities we see under Medicare+Choice, the managed care option many seniors seek. Under the current system, payment rates to Medicare+Choice providers penalize recipients in states such as Minnesota that have traditionally run efficient, relatively low-cost health care delivery systems. Other states that historically did less to limit costs received more funds for their Medicare managed care plans. Plans serving the average Minnesota county receive \$439 per managed care enrollee (below the national average of \$479), while elsewhere, in Miami, for example, rates are as high as \$798 per month. A Medicare beneficiary in Miami may have a managed care plan that offers drug benefits, plus eyeglasses and hearing aids, for the same price that Minnesotans pay for their basic Medicare services.



ALTHOUGH MOST OF US SHARE THE GOAL OF BALANCING THE BUDGET, PLACING ARBITRARY DOLLAR CAPS ON TREATMENT WILL THREATEN PATIENT CARE.

gion, but efforts to keep all Medicare costs down prevailed. I sponsored a proposal to address this problem during this year's House debate on the Medicare budget, but we have yet to achieve a more equitable system for rural and other low-reimbursement areas. As Medicare reform progresses, it is imperative that Congress not neglect the existing regional inequities that harm seniors in many states.

Many of us from rural areas continue to push for more seniors to simply have the chance to enroll in Medicare+Choice managed care plans. Most Medicare beneficiaries in Minnesota do not have the Medicare+Choice option, forcing them into the traditional fee-for-service Medicare. Few areas of our state offer Medicare managed care plans because the reimbursement rates are too low. These low rates also preclude patients' access to some of the benefits of more generous managed care plans, namely, prescription drugs or other expanded benefit packages. I support efforts to provide additional incentives for managed care plans to enter the market in rural areas. It's simply a matter of fairness for all Medicare beneficiaries regardless of residence. Medicare reform cannot be achieved unless this flawed payment system is corrected.

Prescription Drug Coverage

While many of us struggle to address the flaws in Medicare's existing insurance programs, older Minnesotans continue to struggle with prescription drugs costs. New technologies and developments in genetics and the life sciences have spawned wonderful new drug therapies, but the key for many seniors is affordability. Nationally, the annual cost of medication exceeds \$100 billion—10 percent of our total national health care costs. Many people cope with high out-of-pocket costs

Older Minnesotans struggle with prescription drug costs.

This problem has persisted for more than a decade, but our attempts to address the inequity have failed at every turn. During the BBA97 Medicare debate, many of us supported a provision that detailed a mechanism for delivering parity to Medicare+Choice plans in our re-

by either rationing their spending on medications or not making the purchases their physicians recommend. As more patients cannot afford these therapies, we will see costly increases in hospitalizations and nursing home admissions—and higher mortality.

President Clinton, joined by many here in Congress, has proposed an extensive new prescription drug benefit for Medicare recipients. Under the plan, the one-third of Medicare recipients without drug coverage could pay a monthly premium to hedge against expensive drug therapies. Rising drug costs severely burden millions of Americans, a problem we must address. No solution to this problem, however, should be enacted as an alternative to the reform or adequate funding of existing Medicare programs.

I remain hopeful that we can meet these and other Medicare challenges. We must remember that despite funding difficulties and sometimes confusing paperwork, the Medicare program remains extremely popular among retirees. I am confident that we can make the program more manageable, ease the paperwork burden, and establish more appropriate reimbursement rates to providers while maintaining excellent standards for patient care. It is my impression that most lawmakers on Capitol Hill believe that Congress must preserve Medicare for the future without eroding the public's confidence in this important social insurance program. MM

Democratic Rep. David Minge represents Minnesota's 2nd Congressional District in the U.S. House of Representatives.

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Will Consumers Warm to the Idea of Cold Pasteurization?

Jodi Ohlsen Read

People used to worry about radiation from microwave ovens, but today the safety of these appliances hardly raises an eyebrow. Now the public has a new concern: the growing use of food irradiation, a technology intended to prevent foodborne illness by controlling insects, extending the shelf life of fresh foods, and killing disease-causing microorganisms such as *Campylobacter*, *Salmonella*, *E. coli*, and *Listeria*. Although irradiation of wheat, white potatoes, poultry, fruits, vegetables, and various herbs and spices was approved years ago, approval of red meat irradiation by the U.S. Department of Agriculture (USDA) in 1999 has helped propel efforts to introduce irradiated foods to more consumers.

For much of the public, however, just the term "irradiation" evokes a negative response. Consumers want to know what is actually done to the food. Is it radioactive? Is it safe? How will I know if I'm buying irradiated food? The answers to these questions, say food scientists and industry experts, should allay public fears.

Safe and Healthy

Food irradiation safety has been studied for more than 40 years. Multigenerational studies with animals have demonstrated that irradiated foods are safe to eat and their nutritive value is only minimally altered. The changes are no greater than those caused by cooking, canning, or freezing.

"In some cases, you will have some reduction in nutrient level, particularly in thiamine, that is not very significant," says Donald Thayer, Ph.D., research leader for food safety, USDA Agricultural Research Service, Eastern Regional Research Center. In USDA studies, irradiated pork showed a vitamin B loss of only 3 percent, compared with a loss of about 30 percent from cooking.

Irradiation also produces radiolytic compounds, chemicals that are created in traditional cooking as well. "When you add energy to food, the compounds change," says Christine Bruhn, Ph.D., director of the Center for

*As more irradiated
foods show up
in markets, many
people have questions
about the safety
and nutritional value
of these products.*

Consumer Research at the University of California–Davis. "Take an egg, for example. When you cook it, it changes. It's not anything to be frightened about."

Thayer agrees that the compounds do not present a health risk. "All of the radiolytic effects are very, very minor," he says. "We're talking parts per billion. If you look at the analysis of it, you cannot detect any effects. Only with extremely sensitive testing can you detect any changes, and they are minuscule."

Contrary to some public perceptions, irradiated food is not sterile. If a pathogen gets on the food after it is irradiated, the food can still "go bad." Thayer compares irradiation to milk pasteurization: Like pasteurized milk, irradiated food will still spoil at room temperature.

Irradiation does affect healthy flora in food, but without serious consequences, according to Thayer. "We find that lactic acid bacteria, which make things sour and inhibit growth of pathogens, are very insensitive to irradiation. The lactics are the ones we think of as being helpful. Other organisms, like *E. coli*, are more sensitive," he says.

The Irradiation Process

When food is irradiated, it is exposed to carefully measured intense radiant energy, called ionizing radiation. The most common source of ionizing energy is cobalt 60, a radioactive isotope of cobalt that emits gamma rays. Other sources include electron beam (e-beam) and x-ray. The radiation destroys insects, extends the shelf life of food, prevents fruits and vegetables from ripening too fast, and, at sufficiently high levels, kills pathogens by breaking up their DNA. The amount of energy used in food irradiation is not enough to make food radioactive. Because irradiation works without significantly raising the food's temperature, this "cold pasteurization" process causes only slight nutrient losses and changes in food texture, color, and flavor.

Not all foods receive the same degree of irradiation. Red meat and poultry, for example, get higher doses than fruits and vegetables. Low-level treatment keeps foods such as onions and potatoes from sprouting. Higher levels

U.S. Foods Approved for Irradiation

Source: U.S. Department of Agriculture



of radiation destroy insects that eat fruit and grains, and even higher levels kill disease-causing bacteria.

Labeling Requirements

Certain foods, including herbs and spices, have long been approved for irradiation (see the timeline above). Astronauts used irradiated foods as early as 1972. And in one Illinois market, irradiated strawberries have had wide consumer acceptance for several years. Treated tropical fruits also are sold in specialty markets. Although more irradiated foods will soon be available, they won't entirely replace all other foods; consumers will still be able to choose the nonirradiated version. Offering both options makes sense to Bruhn.

"Irradiation is a value-added process," she says. "There is no sense using it unless there is an explicit benefit. I'd like to see all ground beef irradiated, in restaurants, in schools, in stores. In the future I believe that there's a real benefit. Right now, I'm hoping we'll have a choice in the market."

For foods that are irradiated now, the Food and Drug Administration (FDA) requires prominent labeling that includes the radura, a logo showing a green leaf and broken circle, and the words "treated with radiation" or "treated by irradiation." Eventually, irradiated foods may be labeled "Cold Pasteurized" or "Treated by e-beam pasteurization for freshness and health."

The National Food Processors Association (NFPA) and other industry groups do not support the FDA labeling requirement, believing that consumers will see labels as a warning. "We argue that the FDA should revise existing labeling requirements to employ alternative language that is more consumer-friendly, such as cold pasteurization," says Brian Folkerts, vice president of government affairs at the association. "We don't believe that irradiation is any different than any other thermal processing. Labeling should be voluntary and used by food processors to educate consumers and to advise them that product has been irradiated to enhance the safety of the product."

Tyson Foods Inc., of Minnesota, the world's largest poultry producer, echoes that attitude. In its "Position on Cold Pasteurization," the company wrote: "We endorse clear communication to the consumer that the product has undergone 'cold pasteurization' and feel strongly this can best be accomplished through information panels

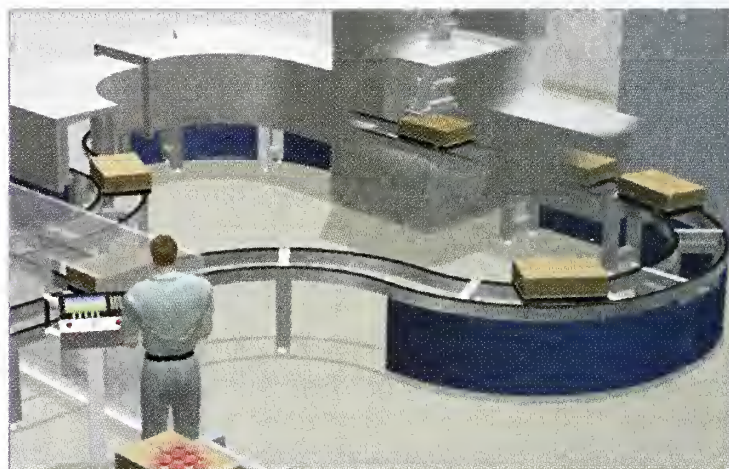
rather than 'warning' labels. As consumer confidence and acceptance develops, labeling requirements should be made optional, as it has been for other technologies that have been proven to be totally safe."

Consumer advocate groups, however, find the prospect of no or less obvious labeling cause for alarm. "The attempts by folks in the food industry to diminish or eliminate labeling of irradiated food have been frustrating," says Ben Lilliston, co-editor of *Organic View* and a spokesperson for the Campaign for Food Safety in the Organic Consumers Association. "They want to use the term 'cold pasteurization,' which consumers won't recognize. It is part of the effort to place irradiated food on the market without consumers' being able to really make the choice. It's an effort to disguise the new technology."

In any case, nobody is planning to irradiate all our food, says Thayer. "Meat and poultry products are probably the first target. Fruits and vegetables—some are suitable and some are not. And perhaps some of the cured meat products people tend to eat raw and maybe luncheon meats."

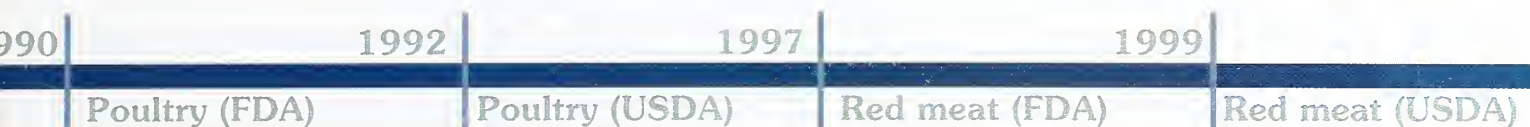
A Collaborative Effort

Although public reaction may be the primary barrier to food irradiation, logistics have also impeded wide-scale production. More than 40 facilities around the country



Electron beam irradiation, or "cold pasteurization," uses electricity as an energy source. Packaged foods are pasteurized in less than two seconds.

ILLUSTRATION COURTESY OF TITAN CORP.



irradiate nonfood products such as medical supplies, bottle nipples, and tampons, but most food irradiation systems are on the West Coast and in Florida. In Minnesota, Tyson Foods is collaborating with Titan Corp., based in Fremont, California, to produce irradiated meat products. A Titan facility in Sioux City, Iowa, will use electron beam technology to irradiate some Tyson chicken products. In that technology, which uses electricity as an energy source, an electron beam passes through the food, killing bacteria and extending the food's shelf life. Tyson anticipates that it will start test-marketing irradiated chicken products next spring. Cargill Inc., based in Minnetonka, and IBP (Iowa Beef Packers) also plan to work with Titan.

High Local Acceptance Predicted

Ronald Eustice, executive director of the Minnesota Beef Council, anticipates a positive response when more products become available here. The council tested the waters by providing more than 50,000 samples of irradiated ground beef to attendees at the Minnesota State Fair. "We ... have found that when the consumer is properly informed, the degree of acceptance is extremely high," Eustice says. "Judging from the reaction at the State Fair, a high percentage of people are willing to pay a few cents more for the added safety."

"Irradiated beef will be available in the grocery store within six to 10 months," says Eustice. "The cost will be only pennies a pound more, probably less than a nickel." In fact, ground beef is one of the first irradiated food products that consumers in Minnesota will have a chance to buy. "The use of irradiation in the beef industry will most likely be with ground beef because there is a mixing and grinding process that can increase the chance of contamination," Eustice explains. "We do not anticipate that steaks and roasts will be irradiated, because there is far less risk of contamination."

A Chance to Improve Food Safety

While irradiated foods will be optional for most consumers, some groups, including young children, older adults, and people with compromised immune systems, may be urged to choose such foods. "The chance of becoming seriously ill from foodborne illness is much less for healthy adults than for young children and older adults," Eustice notes.

Irradiation is not the last word on food safety, however. It is only one part of a comprehensive plan to improve food safety. With any food, consumers must take appropriate precautions, such as refrigeration and proper handling and cooking. "[Irradiation] is not the silver bullet, but instead just one opportunity to make our food safer," says William Schafer, Ph.D., associate professor of food science at the University of Minnesota. "Yes, we can eliminate *E. coli* from hamburger with irradiation. We can also reduce contamination in processing and through educating consumers about proper cooking and handling. There are some products, like lunchmeats, hot dogs, some fresh produce, where it is extremely difficult to eliminate those pathogens or they are more likely to be eaten without proper handling. When we don't have other good alternatives for these products, and we have consumers who are at higher risk, like children or those who are immunosuppressed, this is an alternative."

MM

Jodi Ohlsen Read is a freelance writer in Carver, Minnesota. She wrote a profile of Charles Schulz, M.D., in the October Minnesota Medicine.

MMA and AMA policies on food irradiation

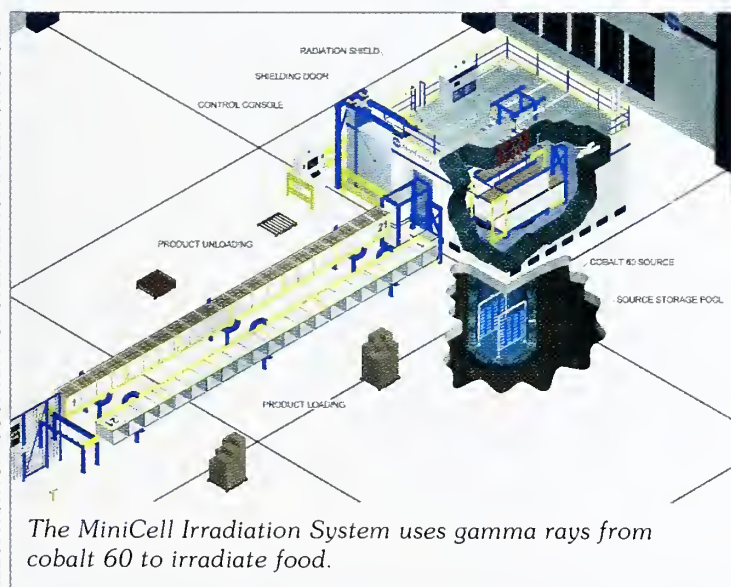


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MMA and AMA Policies on Food Irradiation

The MMA: 1) endorses food irradiation as a safe and effective process (that does not cause the food to become radioactive) that increases the safety of food when applied according to governing regulations; 2) believes that the value of food irradiation is diminished unless it is incorporated into a comprehensive food safety program based on good manufacturing practices and proper food handling, processing, storage, and preparation techniques; and 3) encourages the American Medical Association to continue to work with the Food and Drug Administration and the U.S. Department of Agriculture to continue the requirement that all irradiated fruits, vegetables, meats, and seafood carry the international logo that has become recognized as indicating that the food has been subjected to gamma radiation.

The AMA: 1) affirms food irradiation as a safe and effective process that increases the safety of food when applied according to governing regulations; 2) considers the value of food irradiation to be diminished unless it is incorporated into a comprehensive food safety program based on good manufacturing practices and proper food handling, processing, storage, and preparation techniques; 3) encourages the FDA and the U.S. Department of Agriculture to continue the requirement that all irradiated fruits, vegetables, meats, and seafood carry the international logo that has become recognized as indicating that the food has been subjected to gamma irradiation; and 4) affirms the principle that the demonstration of safety requires evidence of a reasonable certainty that no harm will result but does not require proof beyond any possible doubt (i.e., "zero" risk does not exist).

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A Technology to Reduce the Incidence of Foodborne Illness

By Linda Feltes, M.S.

As foodborne illness becomes an increasingly serious public health problem, food irradiation offers a safe means of prevention.

IT HAS BEEN A LONG TIME COMING, but consumers will soon find irradiated food more readily available in Minnesota, a step endorsed by the Minnesota Department of Health as part of a comprehensive program to help prevent foodborne illness. The irradiation technology to kill food pathogens was developed—and approved—years ago, but controversy and public fear so far have largely kept irradiated food out of the grocery store. In recent years, however, foodborne illness has become an increasingly serious and widely publicized health problem, one that this technology can help solve.

The symptoms of foodborne illness, which is caused by bacteria, viruses, and parasites in food, usually include nausea, vomiting, diarrhea, or fever. It can be fatal: According to a recent analysis by the Centers for Disease Control and Prevention reported in *Emerging Infectious Diseases*, food-caused illness is estimated to account for 325,000 serious illnesses that result in hospitalization, 76 million cases of gastrointestinal illnesses, and 5,000 deaths each year, worldwide.¹

“While the U.S. food supply remains one of the safest in the world, these new findings further support what we have said all along: The public health burden of foodborne disease is substantial,”² said Health and Human Services Secretary Donna E. Shalala, according to a CDC news release. Studies estimate that 6 million to 81 million cases of foodborne illness occur each year in the United States.¹ Two percent to 3 percent

of those infected with pathogens will develop a chronic illness, such as permanent kidney damage, rheumatoid arthritis, Graves' disease, inflammatory bowel disease, or neurological disorders.³

Food irradiation, which is the process of exposing food to specific doses of ionizing radiation, can help prevent these illnesses by drastically reducing the presence of foodborne pathogens. It destroys *Escherichia coli*, *Salmonella*, *Campylobacter*, *Cryptosporidium*, *Listeria*, *Toxoplasma*, and *Trichinella*. It also inhibits sprouting and retards ripening, and reduces the rate of spoilage in foods, thereby increasing shelf life. In addition, its effectiveness for insect disinfection reduces the need for chemical fumigation.⁴

Epidemiology of Foodborne Illness

The Foodborne Diseases Active Surveillance Network (FoodNet) collects data from eight states, including Minnesota, to monitor the epidemiology of emerging foodborne pathogens. According to studies conducted by FoodNet during 1996–97, there are an estimated 6.6 million cases of acute diarrhea per year among the 4.7 million people living in Minnesota; 515,000 of those affected seek medical care, 48,900 go to an emergency room, and 30,500 are hospitalized. The largest percentage of those seeking medical care for acute diarrhea are the young and the old.⁵

Numerous factors play a role in the emergence and persistence of the foodborne pathogens that have caused all this distress. We are eating more fresh fruit and vegetables, and the origins of these products are becoming more global. Food processing is becoming more centralized, while food is distributed more broadly.⁶ More food is eaten away from home. People are assuming less personal responsibility for safe food handling.⁷ In addition, the population of elderly and immunocompromised individuals is growing.⁸

What Happens During Irradiation?

During the irradiation process, food moves through a radiant energy field but never touches the energy source. In the United States, the Food and Drug Administration sets the levels of radiation used on food. The amount needed to kill pathogens on poultry and red meat does not make the food itself radioactive or harm the wholesomeness or nutritional value of food.

The World Health Organization has found the nutritional losses from irradiation to be insignificant in an overall diet.⁹ In general, the nutrients most sensitive to other forms of processing, such as ascorbic

acid and B vitamins, are also sensitive to irradiation.⁴ The loss in nutritional value is often substantially less than from other food processing techniques, such as cooking, canning, freezing, or simply storing. Irradiation does not compromise the taste, texture, or appearance of foods for which it is appropriate. In fact, it is very difficult to tell, even in the laboratory, whether a particular food item has been irradiated.⁴

Why Has It Taken So Long?

The primary reason irradiated food has not been readily available to consumers is the public's fear of radiation. However, food irradiation has not been associated with any health risks. More than 40 years of scientific research and testing support the safety of food irradiation, which has been more thoroughly evaluated than any other food processing technology,¹⁰ including such widely accepted practices as pasteurization. The process of irradiation does not make food radioactive; the doses are too low. Moreover, research has shown that, with education, consumers prefer irradiated food.^{4,11}

In 1986, the FDA approved the use of irradiation to decontaminate and control insects and microorganisms in spices, to control insects in all foods, and to delay maturation in fresh foods. It approved the irradiation of red meat in 1997. A higher dose of radiation is required to kill most pathogens. Thus, higher doses are used for poultry and meat, such as beef, lamb, and pork. Irradiating many types of produce to the higher level approved for meat would change the texture of the produce, rendering it undesirable to consumers.

Irradiated food is already used for a variety of purposes. For example, people who require the safest food, such as patients receiving a bone marrow transplant, are given irradiated food. American astronauts have eaten irradiated food since 1972 to prevent diarrhea in space. And in a few American grocery stores, some irradiated food has been available for at least seven years. Of course, irradiation has many uses beyond food safety: It is currently used to sterilize hospital gloves, sutures, syringes, intravenous lines, and other medical and pharmaceutical supplies. It is also used to sterilize tampons, contact lenses, milk cartons, and plastic wrap.¹²

In addition to receiving FDA approval, food irradiation is broadly supported by the World Health Organization, the American Medical Association's Council on Scientific Affairs, the Centers for Disease Control and Prevention, the American Dietetic Asso-

How Physicians Can Help

Food irradiation is not a panacea for preventing foodborne illnesses—the technology is a complement to, not a substitute for, safe storage and preparation of food at home and in restaurants. But people are becoming less self-reliant with regard to food safety.⁷ In light of that trend, physicians can help by educating their patients about safe food handling, especially those most at risk for severe consequences from foodborne disease—patients who are young, elderly, or immunocompromised. Safe food handling measures include washing hands, cleaning preparation surfaces thoroughly and often, separating foods to avoid cross-contamination, cooking food to a safe temperature, and refrigerating and storing food properly.

The most important message a physician can give patients about food irradiation is that it does not harm people, while it can reduce their risk of contracting a potentially fatal foodborne illness. Irradiated food will be labeled so that consumers can choose irradiated or non-irradiated food. The labeling includes the radura shown below and the words “treated with radiation” or “treated by irradiation.”

Please join the Minnesota Department of Health in support of irradiated food as a safe, protective choice for yourself, your family, and your patients. We welcome your questions. A wealth of information is available from our Web site: www.health.state.mn.us, or by calling the Food Safety Center at the Minnesota Department of Health, 612/676-5068.



ciation, the American Public Health Association, and the Food and Agriculture Organization of the United Nations. Worldwide, it is used to prevent foodborne illness, reduce spoilage, and increase the exportability of food in 40 countries, including Brazil, France, Mexico, Israel, the Netherlands, and the United Kingdom.¹³ **MM**

Acknowledgment

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	2000 Ford Expedition XLT, 4WD, 4dr	\$33,165	\$29,047	\$520	\$447	\$396
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Influenza Vaccination for Healthy Working Adults

Annual flu vaccine recommendations are not just for high-risk patients anymore.

Kristin L. Nichol, M.D., M.P.H.

Editor's Note: *Influenza is now recognized as a disabling and occasionally fatal acute illness in otherwise healthy people of all ages. The American Academy of Family Physicians in September 1999 became the first professional organization to recommend routine influenza immunization in everyone aged 50 and older as well as high-risk people of all ages. The CDC's Advisory Committee on Immunization Practices is likely to follow in late 1999. Have you had your flu shot?*

—Barbara P. Yawn, M.D., M.Sc.
Series Editor

Each year, 10% to 20% of the U.S. population becomes ill with influenza. In the elderly and those with chronic medical conditions, such as chronic cardiopulmonary disease or diabetes, the complications of influenza may be particularly serious, often resulting in hospitalization or even death. Thus, these high-risk groups are targeted for annual vaccination against influenza.¹

In healthy younger adults, the prominent manifestations of influenza include disruption of daily activities caused by the symptoms of illness, such as headache, fever, sore throat, cough, muscle aches, and malaise. The typical case of influenza may, for example, cause five to six days of restricted activity and three days of absence from work or school.² Up to half of all episodes of influenza illness result in a visit to a health care provider. According to the 1995 National Health Interview Survey conducted by the National Center for Health Statistics, among adults aged 18 to 64 influenza was responsible for more than 200 million days of restricted activity, 100 million days of bed disability, and 22 million health care provider visits. Influenza also caused 75 million work loss days, or 22% of all work loss from acute conditions.³

Influenza may affect healthy working adults in other ways, too. A small study conducted in the United Kingdom suggested that influenza may impair reaction times to a degree similar to that seen in people working at night or under the influence of alcohol.⁴ Reduced work effectiveness was documented in another study of 411 workers with influenza-like illness. In this study, subjects

reported missing on average 2.8 days of work per illness episode. In addition, they worked 0.7 days with reduced effectiveness (average level of effectiveness less than 50% of normal).⁵

Despite the substantial impact of influenza on daily life for healthy working adults (and their employers), this group is not specifically targeted for annual vaccination. Therefore, it is not surprising that influenza vaccination rates for persons under age 65 are low. In 1997, only 22% of adults in Minnesota aged 18 to 64 reported receiving an influenza vaccination during the previous 12 months. In contrast, 69% of elderly Minnesotans had received an influenza vaccination over that same period.⁶

Benefits of Vaccination in Healthy Adults

Should healthy working adults be encouraged to receive influenza vaccinations each year? Yes. Early studies conducted primarily among military recruits demonstrated that influenza vaccination was 70% to 90% effective in preventing laboratory-confirmed illness.^{7,8} Three randomized, placebo-controlled trials highlight the potential benefits to healthy working adults who receive annual vaccinations.

A placebo-controlled trial conducted with 359 healthy health care professionals over the three seasons 1992–93 to 1994–95 confirmed high vaccine efficacy against laboratory-confirmed influenza. In this study, the vaccine was 88% effective against serologically confirmed influenza A (95%, CI 47%–97%) and 89% against influenza B (95%, CI 14%–99%).⁹ Days of febrile respiratory illness and work loss also were lower, but the results were not statistically significant.

Another placebo-controlled trial assessed both the health and economic benefits of influenza vaccination among healthy working adults in Minnesota.¹⁰ In this trial, 849 participants were followed during the 1994–95 influenza season. The half that received vaccine had significant reductions in episodes of upper respiratory tract illness, work loss from upper respiratory tract illness, and physician office visits due to upper respiratory tract illnesses (see Table 1). Vaccination was associat-

Table 1

*Effectiveness of trivalent, inactivated influenza virus vaccine in healthy working adults**

Outcome Category	Reduction among Vaccinated Persons, Percent (95% CI)	p value
# Episodes of upper respiratory tract illness	25 (12 to 38)	<.001
# Days of work loss due to upper respiratory tract illness	43 (17 to 69)	.001
# Physician office visits for upper respiratory tract illness	44 (14 to 73)	.004

*Data are adapted from ref. # 10. CI denotes confidence interval.

Table 2

*Effectiveness of trivalent, intranasal live attenuated influenza virus vaccine in healthy working adults**

Outcome Category	Reduction among Vaccinated Persons, Percent (95% CI)	p value
Any febrile illness		
# illness episodes	10.0 (-2.1 to 20.7)	.10
days of illness	22.9 (11.1 to 32.4)	<.001
days of work missed	13.1 (-0.9 to 25.2)	.07
days with health care provider visit	14.7 (-0.3 to 27.5)	.06
days with antibiotic use	42.9 (33.1 to 51.3)	<.001
Severe febrile illness		
# illness episodes	18.8 (7.4 to 28.8)	.002
days of illness	27.3 (16.7 to 36.5)	<.001
days of work missed	17.9 (4.3 to 29.5)	.01
days with health care provider visit	24.8 (11.6 to 36.1)	<.001
days with antibiotic use	47.0 (37.8 to 54.9)	<.001
Febrile upper respiratory tract illness		
# illness episodes	23.6 (12.7 to 33.2)	<.001
days of illness	24.8 (13.5 to 34.7)	<.001
days of work missed	28.4 (16.3 to 38.8)	<.001
days with health care provider visit	40.9 (30.1 to 50.0)	<.001
days with antibiotic use	45.2 (35.2 to 53.6)	<.001

*Data are from ref # 11. CI denotes confidence interval. "Any febrile illness" was defined as an illness with two consecutive days of systemic or upper respiratory tract symptoms with fever on at least one day and two or more symptoms on at least one day. "Severe febrile illness" was defined as an illness with three days of upper respiratory or systemic symptoms with at least one day of fever and two or more symptoms on at least three days. "Febrile upper respiratory tract illness" was defined as an illness with two consecutive days of upper respiratory tract symptoms with fever on at least one day and two or more symptoms on at least one day.

ed with net savings of about \$47 per person vaccinated: \$6 from lower direct medical care costs and \$41 in indirect savings from reduced work loss time.

The most recently published report of a placebo-controlled trial that assessed the benefits of influenza vaccination among healthy working adults studied the investigational trivalent, intranasal live attenuated influenza virus vaccine.¹¹ This vaccine has previously been shown to be safe and effective in children.¹² In the healthy adults trial, 4,561 participants were studied during the 1997-98 influenza season.¹¹ Compared with placebo, the intranasal influenza vaccine was safe and effective even though the A/H3N2 component of the vaccine was not well matched to the predominant circulating virus for the season (A/Sydney/5/97-like).

While the vaccine was not associated with lower rates of any febrile illness (defined as two consecutive days of systemic or upper respiratory tract symptoms with fever on at least one day), vaccination was correlated with significant reductions in number of episodes, work loss, health care provider visits, and antibiotic use for severe febrile illnesses (defined as three days of upper respiratory or systemic symptoms with at least one day of fever and two or more symptoms on at least three days) and for febrile upper respiratory tract illnesses (defined as two consecutive days of upper respiratory tract symptoms with fever on at least one day and two symptoms on at least one day). (See Table 2.) In this study, approximately 70% of participants self-administered the vaccine.

When licensed, this new vaccine will offer a painless and convenient alternative to the inactivated influenza vaccine. An economic analysis of the costs and benefits associated with this vaccine has yet to be completed.

Safety of Vaccination

In any cost/benefit analysis of an intervention that includes vaccination, it is important to consider the possible side effects of the interven-

tion. Among the elderly, rates of systemic symptoms in vaccine and placebo recipients during the week after immunization with the inactivated influenza vaccine are similar.^{13,14} Vaccine recipients, however, show higher rates of local reactions. These rates are also higher when inactivated influenza vaccine is given to healthy working adults.¹⁰ Systemic symptoms, however, occur at similar rates for both vaccine recipients and placebo recipients. The trivalent, intranasal live attenuated influenza virus vaccine also has been shown to be safe and well tolerated, though in the healthy adults trial, intranasal vaccine recipients experienced higher rates of runny nose and sore throat during the week after vaccination than did placebo recipients.¹¹ These symptoms usually resolved within two days and did not result in increased medication use.

Concerns regarding the possibility of Guillain-Barré syndrome after influenza vaccination also may make patients reluctant to receive the vaccine. After the swine influenza campaign in 1976, the risk of Guillain-Barré syndrome following influenza vaccination that year increased slightly. This risk was about one per 100,000 persons vaccinated.¹ Subsequent studies of the four seasons from 1977 to 1991 did not show a clear association between influenza vaccinations and Guillain-Barré syndrome. A study of the 1992-93 and 1993-94 seasons, however, demonstrated a slight increase in risk following vaccination, representing an excess risk of approximately one additional case of Guillain-Barré syndrome per

million persons vaccinated.¹⁵ To put this in perspective, the estimated risk of dying from influenza and its complications for low-risk persons aged 20 to 64 is about two to nine per 100,000.¹⁶ The potential benefits of vaccination certainly outweigh the risk of developing Guillain-Barré syndrome.

Conclusion

Influenza is a common illness among working adults. It causes much human misery, disruption of daily life, and increased health care use for this group. Immunization with influenza vaccine can safely and effectively reduce illness, work loss, and health care use resulting from influenza. While health care providers should continue to target their high-risk patients for vaccination, they should also offer these benefits to healthy working adults. **MM**

Kristin Nichol is chief of medicine at the VA Medical Center in Minneapolis.

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New Threats from an Old Enemy

A Physician Update on Pneumococcus

Alan R. Lifson, M.D., M.P.H., Roberta Aitchison-Olson, M.P.H., and Anita Ramesh, M.S.

Editor's Note: *We have readily embraced vaccination in children; let's now move on to adults, who also deserve access to appropriate and useful vaccines. Pneumococcal and influenza vaccines are two of the most important. Are you using them? What systems does your practice have in place to ensure their use? A few simple measures can provide important protection for your patients.*

—Barbara P. Yawn, M.D., M.Sc.
Series Editor

S*treptococcus pneumoniae* (pneumococcus) is a major cause of pneumonia, bacteremia, meningitis, and death. Although it causes disease in people of all ages, the risk of infection or severe disease is greatest in young children, elderly adults, and those with certain underlying medical conditions. The rise of drug-resistant pneumococcus has made this pathogen even more dangerous. There is a safe vaccine that effectively prevents invasive pneumococcal disease and includes serotypes most commonly identified in drug-resistant organisms, but this vaccine is greatly underused. More than 40% of seniors in the community and half of nursing home residents surveyed in the Twin Cities metropolitan area during 1998 were not vaccinated against pneumococcal disease. This medical update presents the latest information about pneumococcal disease and vaccination and addresses important issues about preventing this significant health threat.

A Major Health Problem

Pneumococcal infection causes approximately 40,000 deaths every year in this country, accounting for more deaths than any other vaccine-preventable disease.¹ It is estimated that every year *S. pneumoniae* causes 16,000 to 55,000 cases of bacteremia, 3,000 to 6,000 cases of meningitis, and 150,000 to 570,000 cases of pneumonia.² Viral respiratory infections, including influenza virus, can predispose patients to pneumococcal pneumonia by damaging pulmonary clearance mechanisms; pneumococcal pneumonia is a common secondary complica-

tion of influenza. In a comprehensive meta-analysis of mortality in patients with community-acquired pneumonia, among patients in whom the microbial etiology was identified, *S. pneumoniae* overwhelmingly accounted for the largest number of deaths.³

Pneumococcal Pneumonia May Lead to Invasive Disease

Concomitant bacteremia occurs in approximately 10% to 25% of adults with pneumococcal pneumonia.¹ This invasive disease is particularly serious for the elderly. Of 133 cases of invasive pneumococcal infection during 1998 in adults 65 years of age and older living in the seven-county Twin Cities area, 96 (72%) were associated with pneumonia.⁴ The overall case-fatality rate in elderly patients with pneumococcal bacteremia is approximately 30% to 40%.¹

Drug Resistance Is Increasing

Reports of intermediate and high-level resistance to penicillin and other commonly used antibiotics are increasing. In a 1997 multisite surveillance study, 25% of sterile-site pneumococcal isolates had intermediate to high-level penicillin resistance.⁵ Of invasive *S. pneumoniae* isolates from the seven-county Twin Cities metropolitan area in 1998, 20% were nonsusceptible to penicillin, including 13% classified as penicillin-resistant.⁴ Many penicillin-resistant strains of *S. pneumoniae* are also resistant to other antimicrobials, such as erythromycin, trimethoprim-sulfamethoxazole, and many of the cephalosporins.⁶ Recent outbreaks of drug-resistant pneumococcus in long-term care facilities have highlighted the growing seriousness of this problem.^{7,8} In Canada, 2.6% of all *S. pneumoniae* isolates in elderly adults had reduced susceptibility to fluoroquinolones.⁹ A work group sponsored by the Centers for Disease Control and Prevention identified the prudent use of antibiotics and utilization of pneumococcal vaccine as two of the most effective defenses against drug-resistant *S. pneumoniae*.¹⁰

Preventing Invasive Pneumococcal Disease

The current pneumococcal vaccine contains capsular polysaccharide antigens for the 23 serotypes that account for 85% to 90% of invasive pneumococcal infections, including the six serotypes that most frequently cause invasive drug-resistant pneumococcal infection.¹ Although the vaccine's overall efficacy against noninvasive pneumococcal pneumonia is uncertain, a number of studies have found 56% to 81% efficacy for preventing invasive pneumococcal disease.¹ This effectiveness is also reflected in medical costs. By vaccinating all adults aged 65 years and older, it is estimated that almost \$200 million in health care costs could be saved.¹¹

Who Should Be Vaccinated?

Pneumococcal vaccine is recommended for all persons aged 65 years and older.¹ It is recommended for those aged 2 to 64 years with chronic cardiovascular or pulmonary disease, diabetes mellitus, alcoholism, chronic liver disease, cerebrospinal fluid leaks, and functional or anatomic asplenia. Vaccination is also recommended for immunocompromised persons with conditions that increase the risk for pneumococcal disease or its complications, including those with HIV, many types of cancer (including many hematologic malignancies), chronic renal failure, and those receiving immunosuppressive therapy, including long-term systemic corticosteroids.¹ In addition, vaccination is recommended for those aged 2 to 64 years who are living in environments or social settings in which the risk for invasive pneumococcal disease or its complications is increased.¹ This includes certain Native American populations; vaccination status should also be assessed for residents of nursing homes and other long-term care facilities.

In children less than 2 years old, antibody response to most pneumococcal capsular types in current polysaccharide vaccines is poor or inconsistent. The current polysaccharide vaccine is therefore not recommended for this age group. A number of pneumococcal conjugate vaccines have been developed and are currently being tested. These vaccines may eventually provide additional protection for infants and other at-risk persons.¹²

Revaccination Recommendations

Pneumococcal vaccine is generally administered as a one-time subcutaneous or intramuscular injection. A one-time revaccination is recommended five years after the first dose for those considered at highest risk for serious pneumococcal infection, and those expected to have a rapid decline in antibody levels. This includes persons with asplenia, HIV infection, many hematologic and generalized malignancies, chronic renal failure, nephrotic syndrome, and other immunosuppressive conditions, as well as persons receiving immunosuppressive chemotherapy, including long-term systemic corticosteroids.¹

The CDC also recommends that persons 65 years of age and older receive a second dose of vaccine if they were younger than 65 at the time of primary vaccination and received the primary vaccination five or more years

previously.¹ Revaccination three years after the previous dose may be considered for children at highest risk for severe pneumococcal infection who would be age 10 or younger at the time of revaccination.¹

Vaccination History

In the absence of an immunization record, a patient's verbal history can be used to determine prior vaccination status. When indicated, vaccine should be administered to patients uncertain about their vaccination history; the benefits of vaccination outweigh the possibility of local reactions due to revaccination (discussed below). Patients should be given their own vaccination record; receipt of this vaccination should also be recorded in the patient's permanent medical chart. Many medical charts have face sheets or other standardized forms to record this information in a consistent location.

A Safe Vaccine

Pneumococcal vaccine is one of the safest vaccines. The most common reactions are local reactions (such as pain, erythema, and swelling) that recede after a few days.² Moderate systemic reactions such as fever and myalgia occur in less than 1% of all vaccinees. Serious adverse events such as severe allergic reactions are very rare and would contraindicate future doses of vaccine. Pneumococcal vaccine can be administered at the same time (by separate injection in the other arm) as other vaccines, including influenza vaccine.

Studies indicate that revaccination is associated with an increased incidence of local reactions, typically erythema and swelling at the injection site.^{2,13} In one analysis, 38% of revaccinees reported erythema or swelling within the first two days, although only 11% reported that the maximum diameter of this local reaction was 4 inches or larger.¹³ Local reactions typically occurred within the first two days after vaccination and resolved by a median of three days post-vaccination. Systemic symptoms such as fever were not significantly more common in revaccinees, and no serious or unexpected adverse events were associated with revaccination. Additional detail on the current polysaccharide vaccines, including full information on precautions and contraindications, is available in the manufacturer's package insert. The current polysaccharide vaccines are manufactured by Merck & Company, Inc. and Lederle Laboratories.

Many Minnesota Seniors Are Unprotected

A national telephone survey in 1997 revealed that while 69% of Minnesotans aged 65 years and older received an annual influenza vaccine, only 48% had ever received pneumococcal vaccine.¹⁴ A 1998 medical record review of selected long-term care facilities in the Twin Cities metropolitan area found that only half of residents aged 65 years and older had received the pneumococcal vaccine.¹⁵ Another 1998 survey of community-dwelling adults aged 65 years and older in the Twin Cities area found a vaccination rate of only 59%.¹⁶

Surveys of Minnesota seniors have found that many were unaware of the serious potential health threats

associated with pneumococcal disease, and that a single vaccination could afford them significant protection. Easy-to-read educational materials improve pneumococcal vaccination rates and increase physician-patient discussions about the vaccine.¹⁷

The Need for Physician Involvement

In the survey of community-dwelling seniors, physician recommendation was found to be the strongest predictor of pneumococcal vaccination. Of previously unvaccinated respondents whose physicians had offered pneumococcal vaccine, only 3% refused.¹⁶ A health care provider's recommendation to a patient is one of the most important determinants of the patient's influenza and pneumococcal vaccination behavior.¹⁸

Strategies to Improve Immunization Rates

Modifications of organizational systems in clinical practice and long-term care facilities can significantly enhance pneumococcal immunization rates. These include the use of facility-wide standing orders for nonphysician administration of vaccine, admission orders in long-term care facilities, chart reviews of immunization status before outpatient medical visits, walk-in immunization clinics, mailings to patients, consistent documentation of vaccinations, procedures for routine assessment of immunization status, patient and provider education, and written policies.^{19,20} A study of adult immunizations in long-term care facilities found that immunization rates were higher in facilities with formal, written vaccination policies.¹⁹

Information and educational materials on these and other strategies to improve immunization rates in primary care and long-term care facilities can be obtained from the Minnesota Department of Health by calling 800/657-3970 or 612/676-5100, or on the MDH Web site, www.health.state.mn.us/divs/dpc/adps/adps.htm.

Summary

Pneumonia and influenza together are the sixth-leading cause of death in this country.²¹ Physicians have the tools and influence to prevent many of these deaths and significantly improve their patients' health and quality of life. There is no reason for these tools to be underused. **MM**

Acknowledgment

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Alan Lifson is chief of the Acute Disease Prevention Services Section of the Minnesota Department of Health. Roberta Aitchison-Olson is a health educator, Acute Disease Prevention Services Section, and Anita Ramesh is an epidemiologist in the Acute Disease Epidemiology Section of the Health Department.

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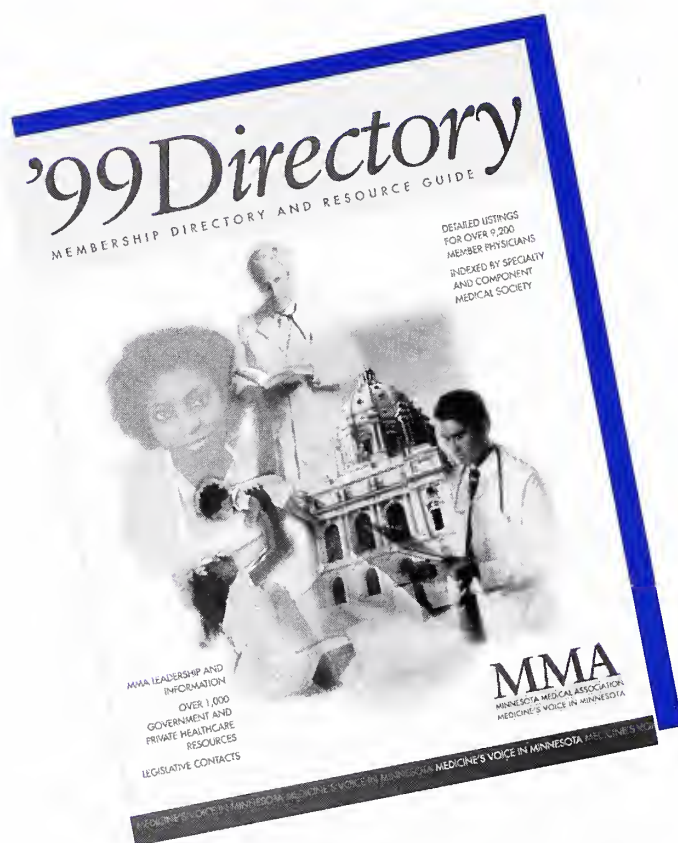
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ANNOUNCEMENTS



New MMA Leaders

John M. Van Etta, M.D. was inaugurated as president of the Minnesota Medical Association at the MMA's 146th Annual Meeting.

The MMA House of Delegates elected the following officers and members of the Minnesota delegation to the American Medical Association:

President-Elect:
Blanton Bessinger, M.D.

Vice President:
Kevin Fleming, M.D.

Secretary:
David L. Estrin, M.D.

Treasurer:
Noel R. Peterson, M.D.

Speaker of the House:
Gary Hanovich, M.D.

Vice Speaker of the House:
Rebecca J. Hafner, M.D.

AMA Delegates:
Lyle Munneke, M.D.
Thomas Peyla, M.D.
Andrew J. K. Smith, M.D.
AMA Alternate Delegates:
Paul C. Matson, M.D.
Sally J. Trippel, M.D.
Benjamin H. Whitten, M.D.

Range of Resolutions Adopted at MMA Annual Meeting

At the 146th Minnesota Medical Association Annual Meeting September 26–28 at Madden's Resort in Brainerd, the MMA House of Delegates adopted resolutions that address a full range of physician concerns. These concerns include repeal of the sick tax, reform of unfair Medicare reimbursement policies, the ability of physicians to direct their patients' care, managed care problems, MMA membership and public health issues.

The Sick Tax

Continuing efforts to repeal the 1.5 percent sick tax will be high on the MMA's legislative agenda. During the 1999 legislative session, the MMA almost won a two-year phase-out of the sick tax, but the governor's last minute opposition led to the proposal's defeat. The 1999 House of Delegates adopted Resolution 215, reaffirming that the MMA will work with the Legislature to eliminate the sick tax.

Medicare Reimbursement Reform

The MMA House of Delegates reaffirmed its determination to change Medicare reimbursement policy by passing Resolution 305. This resolution directs the MMA to continue to work for a "payment formula that results in comparable benefits in every part of the country" and for "changes in federal Medicare reimbursement policy that treat Minnesota seniors and providers fairly."

Patient Care

The House of Delegates adopted Resolution 407, calling on the MMA to study the problem of physician orders

for hospital inpatients and to develop recommendations for requiring that the physician be notified before changes are made in medications, nursing orders, dressings, implantable surgical devices, or other physician orders. The MMA was also directed to develop recommendations for establishing liability for changing physician orders. In testimony before the reference committee, delegates said that hospital committees are, with increasing frequency, changing the treating physician's orders for hospitalized patients. Some physicians expressed concern that such changes could alter the course of treatment and compromise patient care.

Managed Care Concerns

In an effort to ensure continuity of care, the MMA House of Delegates adopted Resolution 403, directing the MMA to evaluate health plan provider agreements' provisions for continuity of care (access to and reimbursement for physicians) following termination of provider status. The MMA is also directed to sponsor legislation requiring that a point-of-service option be made available to all patients who choose to see qualified providers out of network or not under contract.

Resolution 400, regarding the "hassle factor," asks the MMA, as part of its physician advocacy program, to track and address administrative obstacles that physicians face in providing patient care. The MMA Center for Physician Advocacy maintains a 24-hour telephone hot line, 888/662-6774,

RANGE cont. on page 35

VIEWPOINT

John M. Van Etta, M.D.

MMA President



Physicians' Lives Are Built on Four Cornerstones of Care

It is an honor and a privilege to serve as the president of the Minnesota Medical Association. During my inaugural acceptance speech, I talked about the four cornerstones of care—caring for our patients, colleagues, families, and community.

The first cornerstone is the care we provide for our patients. The late Joseph Cardinal Bernardin of Chicago once said the ministry and the practice of medicine were really the same vocation; both emphasize spiritual as well as physical health. Experiences we consider commonplace—the safe, late-night delivery of a baby after a difficult pregnancy, the life-saving incision that stops splenic hemorrhage in an accident victim, and the bedside caring and support for a terminal patient—are not commonplace. In these encounters, physicians transcend their humanity.

We also act as our patients' advocates. If a patient needs care that a health plan is reluctant to provide, we stand up for our patient's right. On the policy level, we work through our MMA for laws and regulations that safeguard patients' rights.

The second cornerstone is caring for our colleagues. The MMA pro-

vides neutral ground, a place where we can discuss the needs of our patients and the practice of medicine without having economic forces and turf battles impinge on our discussion. Physicians from academic centers, group and solo practices, and from various specialties, geographic areas, and county representation all set aside their differences and come together to support our common goal—the best possible health care for the people of Minnesota.

Within our MMA, we care for each other and for our profession. It's critical that our ethical outlook be represented when health care decisions are made. Our MMA makes sure we're at the table with the health plans, insurance companies, legislators, and other organizations, and that we have an impact on a broad range of issues such as scope of practice, public health legislation, reimbursement, and clinical decision making.

Our third cornerstone is care for families—our own and those of our colleagues and patients. No matter how stressful and demanding our practice may be, we must remember our responsibility to care for our own family, and our need for their

love and support.

We often care for our patients' families as well. The MMA is participating in the Educating Physicians on End-of-life Care program, initiated by the AMA to help improve our skills in communicating with patients nearing the end of life and their families. We are privileged when families turn to us for advice and reassurance during this difficult time.

The fourth cornerstone is care for our communities. The MMA has long been active in public education. We worked for clean air legislation in Minnesota and we continue our award-winning campaigns to stop family violence and promote parent education classes. Recently, we launched the "Live and Then Give" organ donor campaign.

Every day, physicians are challenged by ethical questions. When we make a decision we must ask ourselves: Will this care for my patient? For my colleagues? For families? For the community? If the answer is no, we must change our decision.

It will be my privilege to be the spokesperson for and a member of the leadership team of the MMA, promoting the four cornerstones of care. ■

Range cont. from page 33

which physicians can use to bring their questions and concerns to the MMA. These calls allow the MMA to identify a wide array of physician problems.

"The MMA is in the business of responding to physician concerns," said Janet Silversmith, MMA director of health economics and policy analysis. "We will work with the Board of Trustees to design an implementation plan for a hassle factor project that is responsive to our members without adding to the paperwork overwhelming physicians."

Membership

The MMA House of Delegates authorized the Board of Trustees to implement limited "pilot projects" to assess the viability and desirability of expanding the MMA's membership categories and dues structures.

In July, the MMA Strategic Planning Task Force made several recommendations to maintain and increase MMA membership in a changing health care environment. The task force suggested that having several levels of membership categories and dues structures may encourage more physicians from non-urban areas of Minnesota to become MMA members.

"A changing market and economic forces require greater flexibility and responsiveness from the MMA," said Paul Sanders, M.D., MMA CEO. "And any pilot project to expand membership categories and dues structures initiated by the MMA will 'sunset' in three years."

Public Health

The House of Delegates adopted a number of resolutions regarding public health. Substitute Resolution 209 asks the MMA to call on the AMA to work with Congress to pass

federal legislation giving the Food and Drug Administration authority to regulate dietary supplements and herbal remedies, which MMA delegate Donald Asp, M.D., referred to



John M. Van Etta, M.D., of Duluth, who assumed the presidency of the MMA at the 146th Annual Meeting, and former president Judith Shank, M.D., of Plymouth. Van Etta was chosen president-elect by the 1998 MMA House of Delegates.

as "evidence-free medicine."

Resolution 212 asks the MMA to help physicians respond to patients' ad-driven prescription requests and to ask the AMA to study how the health of patients and the cost of health care are affected by direct-to-consumer advertising.

Other resolutions ask the MMA to address the problem of sleepy drivers, the standard of health care delivered in correctional settings, and the Minnesota health care system's ability to respond to major emergencies.

For a summary of all the resolutions, see pages 36-40.

The proceedings of the MMA House of Delegates are on the MMA Web site at www.mnmed.org. ■

MMA Offers End-of-Life Seminar

Rebecca Hafner, M.D., and Mark Leenay, M.D., presented a seminar on Education for Physicians on End-of-life Care (EPEC) at the MMA Annual Meeting.

"Easing the pain and grief of a dying patient is one of a physician's most overwhelming responsibilities," said Hafner, a family physician and medical director at Saint John's Abbey and University in Collegeville. Hafner received her training in the EPEC project from the American Medical Association, which initiated EPEC. She has been working with the MMA this year to convene a series of one-day EPEC seminars in cities across Minnesota.

"There are many factors that can help a physician effectively deal with a patient who is dying," said Leenay, a family physician, geriatrician, and Fairview Health System director of palliative medicine. "A physician should frequently assess the patient's understanding of what's happening. Never hedge about a diagnosis, but be honest with the patient and family. Don't hesitate to involve other health care professionals, if needed."

The MMA is offering EPEC training to physicians at their work site, medical society, or other location. Physicians interested in presenting the EPEC seminar must attend a two-day training course. For information, call Christina Rich, MMA associate counsel, 612/378-1875 or 800/DIAL MMA (800/342-5662). ■

Nelson Wins the Distinguished Service Award

For her years of leadership and service in the Minnesota Medical Association, and her outstanding contributions to organized medicine, Audrey M. Nelson, M.D., of Rochester, has earned the Distinguished Service Award, the highest honor given by the MMA. Nelson accepted the award at the 146th MMA Annual Meeting.

Nelson is a board-certified internist and rheumatologist with a special interest in pediatric rheumatology. She is an associate professor in internal medicine at Mayo Medical School, a consultant in internal medicine and rheumatology,



Paul Matson, M.D., chair of the MMA Board of Trustees, presents the Distinguished Service Award to Audrey M. Nelson, M.D.

and head of the Pediatric Rheumatology Section at the Mayo Clinic in Rochester. She also is a consult-

ant staff member for the Shriners Hospital in Minneapolis.

Nelson has been a member of the Minnesota delegation to the American Medical Association House of Delegates since 1985 and is currently vice chair of the delegation. She chaired the AMA Group Practice Advisory Committee and has served on several AMA reference committees. Nelson also chaired the ad hoc committee that evaluated the AMA's decision-making process and made recommendations for change that were approved by the AMA House of Delegates in December 1998. ■

1999 Resolutions Set Goals for the Year 2000

The 1999 Minnesota Medical Association House of Delegates convened at Madden's Resort in Brainerd on September 27 and 28 and took action on resolutions that will set the MMA's course for the coming year.

100, Educating Physicians about Sexual Abuse

Adopted as amended

The MMA will promote physician education regarding sexual abuse and its consequences as a part of its "Stop the Violence" campaign.

101, Sponsorship of Forum for Enhancing the Training of Medical Students and Residents in Violence and Abuse Issues

Adopted

The MMA will convene a forum of representatives of the state's medical schools and residency training programs to discuss ways to expand physicians' training in violence and abuse issues.

102, MMA Sponsorship of the Minnesota Smoke-Free Coalition

Not adopted

Resolved that the MMA remain a sponsoring member of the Minnesota Smoke-Free Coalition as long as the mission of the coalition and the policies of the MMA are in agreement.

103, Ethnic Data Reporting for Clinical Trials

Adopted

The Minnesota delegation will ask the AMA to study the racial and ethnic categories included in the Federal Office of Management and Budget Directive 15 and determine whether expanding these categories would be appropriate.

104, Provision of Day Care at Major MMA Meetings

Referred to the MMA Board of Trustees (BOT) The MMA will study the idea of providing day care at major MMA meetings.

105, MMA Dues and 2000 MMA Budget

Adopted as amended

MMA member dues for 2000 will remain the same as for 1999 except for medical students, whose dues will be reduced from \$10 to \$5 per year.

The MMA adopted the proposed 2000 MMA Operations Budget and the proposed 2000 MMA Capital Budget.

106, Development of Additional Membership Categories and Dues Structures

Adopted as amended

The BOT is authorized to continue to study and to implement limited "pilot projects" to assess the viability and desirability of adding membership categories and dues structures. This authority sunsets in three years.

107, MMA Nominating Committee Membership

Adopted

MMA bylaws are amended to expand the membership of the Nominating Committee to include the previous three MMA past presidents and the current chair of the MMA delegation to the AMA House of Delegates.

108, Section Name Change

Adopted

The Minnesota Medical Association-Resident Physician Section name has changed to the Minnesota Medical Association-Resident and Fellow Section.

109, Report of Unification Work Group

Adopted as amended

The MMA BOT will review the validity of the 1996 Anderson, Niebuhr and Associates Membership Survey results regarding the preference of Minnesota physicians for unified membership, and if those results are found to be no longer valid, the MMA will survey members and nonmembers to determine whether Minnesota physicians prefer to have the option of joining the MMA or a component medical society without joining both. The MMA will provide a report to the 2000 House of Delegates that includes the survey results, the history of unification of membership in Minnesota, a review of recent national membership trends, and recommendations that would continue the strong links between the MMA and component societies, while addressing component society and MMA membership issues.

110, MMA Dues for Medical Students

Not adopted

Resolved that the MMA will waive MMA dues for medical students at the three Minnesota medical schools.

111, The Bone and Joint Decade

Adopted as amended

The MMA, in coordination with the Minnesota Orthopaedic Society and other interested organizations, will submit a resolution to the Legislature and governor to formally endorse the Bone and Joint Decade.

200, Comprehensive Advanced Life Support (CALS)

Adopted as amended

The MMA will support efforts to ensure ongoing funding from state and professional sources to offset the costs of the CALS and will encourage medical centers to accept successful completion of CALS as a substitute for recertification for staff privilege purposes in the following programs: Advanced Cardiac Life Support, Advanced Trauma Life Support, Pediatric Advanced Life Support, Advanced Pediatric Life Support, Advanced Life Support-Obstetrics,

and Neonatal Resuscitation Program.

202, Nursing Shortage—Cause and Alleviation

Adopted as amended

The MMA will work with appropriate nursing and other organizations to facilitate a study of the causes of the nurse shortage and recommend measures to help alleviate it.

203, Mandate Legislative Protection for Providers in Health Plan Contracting Practices

Referred to the MMA BOT

Calls on the MMA to introduce legislation that would require health plans to give health care providers fee schedules for the top 100 service codes for the particular practice or specialty and for each health insurance "product" the plan offers, a written summary of the criteria used to determine medical necessity for the top 100 service codes for that particular practice or specialty, a 30-day notice when provider contracts are terminated or not renewed, and a written statement of the reason for the termination. Furthermore, it calls on the MMA to seek legislation that would grant health care providers the opportunity to appeal decisions based on quality of care and financial or professional performance and prohibit a health plan from making unilateral changes to contract terms, including "hold harmless" clauses in contracts, and retroactively denying payment for a previously approved treatment.

204, Revision of Federal and Minnesota State Medical Savings Account (MSA) Statutes

Adopted as amended

The MMA will ask the Minnesota delegation to support legislation that would remove restrictions on MSAs in order to allow any size company, federal employees, or individual persons to adopt MSAs as the deductible portion of their major medical insurance policy; allow use of pretax dollars to fund the entire MSA self-insurance fund whether paid by an employer, an employee, or an individual; eliminate the sunset provision of MSAs in federal law; and allow use

of pretax dollars to fund MSAs whether paid by an employer, an employee, or an individual.

205, Legislation for Increasing the Severity of Charges for Domestic Violence in the Presence of a Child

Not adopted

Resolved that the MMA support legislation to increase the level of criminal offense for domestic violence when it is perpetrated in the presence of a child.

206, Increasing Government Program Rates

Not adopted

Resolved that the MMA support changes in state-sponsored government program reimbursement policies to base physicians' and other health care providers' reimbursements on the current, reasonable cost of efficiently providing high-quality health care.

207, Monitoring the Minnesota Environment and Where Medical Residents Choose to Practice

Referred to the MMA BOT

Calls on the MMA, in cooperation with the major residency training programs, to track how many resident physicians are leaving Minnesota each year and identify any economic factors that could be modified to keep Minnesota a great place to practice medicine.

208, Pharmaceutical Costs

Adopted as amended

The MMA will participate in establishing a state task force of representatives of interested constituencies to seek solutions to the problem of rising pharmaceutical costs. The MMA will ask the AMA to establish a similar national task force and will develop information and mechanisms to assist Minnesota physicians in controlling pharmaceutical costs.

209, FDA Regulation of Dietary Supplements and Herbal Therapies

Adopted in lieu of Res. 209 and Res. 214

The MMA will continue to identify



resources on the use, safety, risks, and liabilities associated with the use of dietary supplements and herbal remedies. The MMA will ask the AMA to work with Congress to pass federal legislation that would authorize the Food and Drug Administration (FDA) to regulate dietary supplements. The legislation should standardize all dietary supplements, incorporate toxicity and interaction warning labels, and allow the FDA to regulate advertising claims.

210, Exclusive Contracts for Drugs and Devices

Referred to the MMA BOT

Calls on the MMA to study issues raised by the exclusive contracts that hospital organizations and health systems have with pharmaceutical manufacturers and medical device manufacturers; develop recommendations and legislation, if needed, to protect patients from potential harm that may result from not having timely access to physician-prescribed drugs or devices; and, if legislation is developed, include in it provisions stating that any liability incurred as a result of such contracts excludes the physician whose orders have been overridden.

211, Repeal of 1998 Abortion Reporting Laws

Adopted as amended

The MMA will continue to work to repeal the Minnesota statute relating to the reporting of abortion procedures and complications.

212, Direct-to-Consumer Ads

Adopted

The MMA will help physicians respond to patients' ad-induced prescription requests and will recommend that the AMA study how the health of patients and the cost of health care are affected by direct-to-consumer advertising.

213, Continued Specialty Physician Resource in Minnesota

Referred to the MMA BOT

Calls on the MMA to survey Minnesota physicians to ascertain the current and future economic environment for specialty physicians and the impli-

cations by geographic location for Minnesotans.

215, Sick Tax

Adopted

The MMA Board of Trustees will continue to work with the Legislature to eliminate the sick tax.

300, Patients' Documentation of Diagnosis and Surgical Procedures

Not adopted

Resolved that the MMA recommend to physicians that the exact diagnosis and surgical procedure from the discharge summary be provided to patients.

301, Epinephrine Syringe

Not adopted

Resolved that the MMA request that the producers of epinephrine develop and sell a syringe with a fixed needle for one-time, subcutaneous injection, that the syringe be packaged in a small, portable container suitable for emergency use, and that the MMA encourage all Minnesota physicians to carry this syringe.

302, American Academy of Pediatrics (AAP) Guidelines for Circumcision

Adopted as amended

The MMA will encourage physicians to become knowledgeable about the AAP policy regarding circumcision and follow its recommendations.

303, Medica Choice Health Plan Radiology Reimbursement Policy

Not adopted

Resolved that the MMA continue to work for change in the Medica Health Plan policy regarding x-rays taken in a physician's office.

304, Prominent Ears

Referred to the MMA BOT

Calls on the MMA to encourage Minnesota health plans to provide coverage for children with excessively prominent ears of an identified severity.

305, Medicare Funding Equity

Adopted as amended

The MMA will continue to support

changes in federal Medicare reimbursement policy so reimbursements are based on the current, reasonable cost of efficiently providing high-quality health care, and to use the payment formula that results in comparable benefits in all states. The MMA will study and evaluate those aspects of the Balanced Budget Act that may erode the health care infrastructure and reduce access to care.

306, Improving Health Care Access

Not adopted

Resolved that the MMA support policies designed to increase the availability of health care insurance and to oppose policies that would increase the number of uninsured Minnesotans.

307, Risk-Sharing of Pharmaceutical Costs

Referred to the MMA BOT

Calls on the MMA to develop a policy for equitable risk-sharing of pharmaceutical costs by physicians and health plans.

308, Yearly Health Insurance Re-contracting

Adopted as amended

The MMA will support health care contracting practices that provide for long-term, stable relationships among the public, health plans, and physicians.

309, MMA Conference on Kids, Guns, and Media Violence

Adopted as amended

The MMA will convene a "Kids, Guns, and Media Violence: Crisis? Conflict? Consensus?" conference that will include scientific information and discussion regarding societal, legal, regulatory, and public health policy for parents, educators, law enforcement officials, and state government officials. Gov. Jesse Ventura will be invited to be the keynote speaker.

310, Appropriate Evaluation and Treatment of Patients with Mental Health Conditions

Adopted as amended

The MMA will introduce legislation to require managed care health plans



and third-party insurance providers to pay physicians a reasonable sum for the preparation of any additional prior authorization requests for the treatment of patients with mental health conditions.

311, Medicare Guidelines for Medication Use Interaction in Long-term Nursing Facilities

Not adopted

Resolved that the MMA urge the AMA to work toward limiting the burdensome Health Care Financing Administration mandates that interfere with patient care in long-term nursing facilities, and that the MMA ask the Minnesota Department of Health to temper its aggressive "guidelines of interpretation" of these federal regulations.

312, Cash Basis Managed Care Contracts

Referred to the MMA BOT

Calls on the MMA to study the efficacy of requiring that all health care services be reimbursed and negotiated on an actual "cash/reimbursement" basis available to all consumers; study revising state statutes to require managed care contracts to be written on a cash basis; and, if feasible, develop and introduce legislation to require that physicians' managed care contracts use a cash basis as a replacement for negotiated fees.

313, Noisy Toys

Referred to the MMA BOT

Calls on the MMA to support legislation that would decrease the maximum decibel level of toys and electronic devices to levels comparable to or below industrial tolerances, and to educate the public on the dangers of noise-induced hearing loss.

314, Sleepy Driving

Adopted

The MMA will identify sleepiness behind the wheel as a major public health issue and develop a public education campaign on the issue and will ask the AMA to develop a national public education campaign.

315, Drivers Education Regarding Sleepiness

Adopted

The MMA will promote the inclusion of education on the dangers of driving while sleepy into all Minnesota drivers education classes and will ask the AMA to encourage all state medical associations to do the same.

316, Sharps Disposal

Adopted as amended

The MMA will encourage all health care providers who prescribe or dispense sharps to educate patients regarding proper sharps disposal techniques and will convene a task force to study the problem of household-generated sharps disposal in order to identify potential solutions.

317, Physician Time

Referred to the MMA BOT

Calls on the MMA to encourage health plans to reimburse physicians for time spent with health plan representatives concerning prescription substitution and for researching drugs recommended by these plans.

318, Varicella Vaccination

Not adopted

Resolved that the MMA support legislation to require varicella vaccinations for children in schools and licensed day care centers.

319, Protective Headgear

Not adopted

Resolved that the MMA support legislation requiring the use of helmets for minors while they are riding bicycles and off-road vehicles, Rollerblading, and skiing in licensed ski areas.

320, Water Safety for Children

Not adopted

Resolved that the MMA support legislation to require the use of life preservers for minor children while they are in watercraft other than public conveyances conforming to Coast Guard regulations.

400, Implement a Practice Hassle Factor Project

Adopted as amended

The MMA, as part of its physician

advocacy program, will design and implement a practice hassle factor project to track and address administrative obstacles to providing patient care.

401, Tort Liability

Not adopted

Resolved that the MMA oppose expansions of tort liability to physicians that would increase health care costs, premiums, and/or the number of uninsured Minnesotans.

402, Health Care Standards in U.S. Jails and Prisons

Adopted as amended

The MMA will ask the AMA to research, evaluate, and make recommendations for the revision of the standards of health care provided in correctional settings, including the standards for identifying appropriate professionals to serve this population and standards for screening, identifying, and controlling serious infectious illnesses. The MMA will ask the AMA to advocate for improving the health care delivered in correctional settings so it is consistent with prevailing community standards.

403, Options for Physicians and Patients When Managed Care Contracts Are Terminated

Adopted

The MMA will request copies of provider agreements from managed care organization insurers and evaluate provisions for continuity of care (access to and reimbursement for physicians) following termination of provider status; study existing statutory requirements for continuity of care and transition to new providers; and sponsor legislation requiring that a point-of-service option be made available to all patients who choose to see qualified providers out of network or not under contract.

404, Remembering Persons with Developmental Disabilities Who Were Involuntarily Committed to State Institutions

Adopted as amended

The MMA will commend and encourage the efforts of the "Remembering With Dignity" project.



405, Public Health and Environmental Impact of Railroads

Adopted as amended

The MMA will ask the AMA to study the impact of railroad traffic on public health, specifically as it pertains to emergency access to hospitals and emergency evacuation in case of hazardous material contamination.

406, Emergency Preparedness

Adopted as amended

The MMA will study Minnesota's health care system's ability to respond to major emergencies and, if recommended by the study, will organize with other stakeholders a conference on emergency preparedness and develop an emergency response plan.

407, Liability for the Substitution of Physician Orders for Inpatients

Adopted

The MMA will study the problem of changes in physician orders for inpatients and will develop recommendations for requiring a timely notice to the treating physician prior to initiating alterations in physician directives and establishing the liability for changing physician directives.

408, Reporting Hospital Bed Capacity to the Minnesota Department of Health

Adopted as amended

The MMA will work with the Minnesota Department of Health to review the reporting requirements for hospital bed capacity and nursing home capacity, will determine if the reporting requirements can be revised to be more useful and, if necessary, will develop legislation to establish a hospital bed reporting system that produces useful data.

409, Non-compete Clauses

Referred to the MMA BOT

Calls on the MMA to oppose non-compete clauses that impede the affected physician's ability to practice a chosen specialty in any community.

410, Gag Rules

Referred to the MMA BOT

Calls on the MMA to oppose "gag rules" that limit discussion and/or criticism of one's practice.

411, Consensus Statement of the Physician Leadership on National Drug Policy (PLNDP)

Adopted as amended

The MMA will endorse and support the Consensus Statement of the PLNDP and will support the re-allocation of resources toward the prevention and treatment of drug addiction to reduce the supply and demand for illegal and addicting drugs. The MMA will advocate increased support for treatment, including treatment for prisoners, and will support drug courts and the drug testing of parolees and probationers.

412, Nursing Home Side Rails

Not adopted

Resolved that the MMA recommend informed consent regarding the use of side rails and encourage the development of safer side rails for the protection of the patient.

413, Repeal of Hospital Bed Moratorium

Adopted as amended

The MMA will develop legislation modifying the existing hospital bed construction moratorium statute so that hospital bed licenses are not held in a way that jeopardizes public and community interests and innovations to cost-effective care. ■

Medical Director

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NEWS DIGEST

*People and places
making medical news*



People & Places

Hennepin Medical Society announced its changes in leadership for the new fiscal year: David L. Estrin, M.D., succeeded from president to chair; Virginia R. Lupo, M.D., succeeded from president-elect to president; David L. Swanson, M.D., became president-elect; Richard M. Gebhart, M.D., continues as secretary; and Michael B. Ainslie, M.D., continues as treasurer.

Paul Torgerson will join Fairview Health Services in mid-November as senior vice president, chief administrative officer, and general counsel, a new position. Torgerson is currently chair of the health care practice group at Dorsey & Whitney, LLP.

James L. Haddican joined Gillette Children's Specialty Healthcare as vice president of finance, replacing longtime Gillette Vice President John Tomlin, who retired after 20 years at the hospital. Haddican's experience includes positions with University of Affiliated Family Physicians, the Wilder Foundation, and, most recently, Regions Hospital, where he was director of financial planning and decision support.

Kevin M. Pitzer is the new chief administrative officer of the Olmsted Medical Center, Rochester, Minnesota. He previously worked in administration at Mayo Clinic-Rochester and Mayo Clinic-Scottsdale, as a consultant with Deloitte

& Touche, and as director of practice management at Scottsdale Healthcare FamilyCare.

The Minnesota Academy of Physician Assistants has been selected as a winner of the 1999 American Academy of Physician Assistants Constituent Organization Award of Excellence—Medium Chapter Category. The award recognizes excellence in constituent organization programs and includes a \$2,500 award.

The Minnesota Poison Control Center will remain for at least nine months at Hennepin County Medical Center, which has helped manage the service for 27 years. The Minnesota Department of Health will reopen the contract to competitive bids next year. It cost \$2.1 million to manage the poison control system in 1998, according to health department officials, who hope to raise more money in the next legislative session. The health department has asked industry groups to give money to help defray operating costs. The Minnesota Medical Association said it would contribute \$10,000.

The Alzheimer Clinic at the University of Minnesota has relocated to the University of Minnesota-Wilder Senior Health Center in St. Paul. The clinic, established in 1982, provides evaluation and treatment of dementing disorders.

Minnesota Eye Consultants,

P.A., has opened an east-metro location of Minnesota Eye Laser & Surgery Centers in Maplewood. The facility offers LASIK laser vision correction.

The East Metro Diabetes Initiative was honored with the 1999 Community Health Award from the Minnesota Hospital and Healthcare Partnership. The East Metro Diabetes Initiative, located in St. Paul and funded by HealthEast and United Hospital foundations, is a program that works with primary care physicians to improve the quality of care for people with diabetes. The Community Health Award is given each year to a hospital or health system that works to improve its community's health.

The University of Minnesota and Fairview Health Services have teamed up to open the Mind Body Spirit Clinic on the Riverside campus of Fairview-University Medical Center. The clinic combines complementary and conventional medicine, offering Traditional Chinese Medicine, massage, healing touch, mindfulness-based stress reduction, and other complementary therapies. A family physician, psychiatrist, obstetrician/gynecologist, and internal medicine specialist also provide care at the clinic. Mind Body Spirit clinicians will also offer workshops, classes, and support groups. ■





Socioeconomics

'U' Will Get Drug Royalties from Glaxo Settlement

The British pharmaceutical giant Glaxo Wellcome Inc. agreed to pay the University of Minnesota royalties on the company's worldwide sales of Ziagen, the successful AIDS drug made with a synthetic molecule developed by university chemists Robert Vince and Mei Hua.

The royalty agreement was part of a settlement of a patent lawsuit filed by the university in 1998 claiming that Ziagen is among several

antiviral compounds patented in the 1980s by Vince, a professor in the College of Pharmacy, and later licensed to Glaxo.

Under the terms of the settlement, Glaxo will pay the university 5 percent of the first \$300 million in worldwide sales annually, 7 percent of sales from \$300 million to \$700 million, and 10 percent of sales over \$700 million. In addition, the university will receive a one-time payment of \$7.25 million. According to university estimates, total royalties may exceed \$300 million. Two-thirds of the money will be reinvested in research and education, while most of the remaining third will go to Vince and Hua, Vince's research partner.

HealthPartners Gets Norwest Contract

Bloomington-based HealthPartners, which will end its ties with the Buyers Health Care Action Group on January 1, 2000, is taking the health plan's largest employee group—Norwest—with it. HealthPartners will provide fully insured health care to Norwest employees and their family members who are now covered by BHCAG, representing 25,000 of BHCAG's 154,000 members.

Medicare HMO Rates Will Increase Sharply

The three Twin Cities companies that offer Medicare HMO coverage—HealthPartners, Medica Senior-Care, and UCare for Seniors—have proposed monthly premiums for next year ranging from \$270 to \$299 for comprehensive plans that include drug, dental, and vision benefits. These rates are 12 to 50 percent higher than the rates for 1999.

The rate increases reflect higher medical costs, especially drug costs,

said health plan officials. Premiums on basic Medicare HMOs with fewer benefits will increase much less, by less than 10 percent.

Study Finds Equal Care for HMO and Other Patients in ER

A study of 2,300 Minnesotans age 65 and older who were treated for heart attacks in Minnesota emergency departments found that HMO patients received care that was the same as or slightly better than the care other patients received.

The study, published in the September 27 *Archives of Internal Medicine*, was an attempt to examine whether HMO practices interfere with quality of care. "While it has been popular to criticize HMOs in recent years, the study shows they facilitate care as good as, if not better than, traditional, fee-for-service insurance," said Cathy Borbas, executive director of the Healthcare Education and Research Foundation in St. Paul and an author of the study.

Efforts Target Teen Smoking

With underage cigarette use in Minnesota increasing, the state will spend \$17.7 million by 2001 in an attempt to reduce youth smoking rates by 30 percent. The money is the first installment of the \$590 million anti-tobacco endowment created by the state Legislature this year. State officials said they would enlist teenagers' help in designing and implementing tobacco prevention and reduction programs.

Also, starting January 1, 2000, new motorists under age 18 will get a redesigned driver's license intended to make it harder for them to buy cigarettes. A new line on the licenses of young drivers will show the date on which they will turn 18, the legal age for buying cigarettes. ■

Multicare Associates of the Twin Cities, a multispecialty/multi-location clinic, located in the northern suburbs of Minneapolis/St. Paul, has available positions for BC/BE physicians in the following departments:

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Rates, Trends & Data



Poor Americans Lack Health Insurance

The number of Americans without health insurance jumped to 44.3 million in 1998, up 1 million from 1997, according to Census statistics. Nearly half of the nation's low-wage workers (47 percent) do not have coverage. Despite the robust economy and record low unemployment, health insurance is increasingly unaffordable for poor people, as medical costs continue to rise

faster than inflation. The young, people with less education, and those with lower incomes were far less likely to have insurance than those with a better education and higher earnings.

Girls' Intentional Overdosing Worries Health Officials

Children and teens in Hennepin County were hospitalized 148 times for self-poisonings in 1997, according to a report released by the Hennepin County Community Health Department. The majority of those incidents involved girls.

There are tremendous pressures on young girls, and obviously they're crying out for help," said Renee Wixon, an author of the report on

injury and violence involving infants through 19-year-olds in the county, in an article in the *Star Tribune*. "We, as adults, really need to be listening to young girls, and find out what's going on in their lives, and doing some problem-solving to help them cope with the issues."

In 1997, girls outnumbered boys three to one in attempting suicide by poisoning, most often with pain relievers. Though girls attempt suicide more often, more boys kill themselves because they use more lethal means, such as shooting.

Most Patients Report 'Average' Satisfaction with Health Systems

In a survey asking patients to rate their health care systems, Hennepin



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Faculty Associates, St. Croix Valley Healthcare, and Children's Physician Hospital Organization scored above average, while Aspen Medical Group, HealthPartners Medical Group, and HealthPartners Regional Affiliated scored below average among 14 Twin Cities health systems that were rated.

In its second annual survey, the Minnesota Department of Employee Relations and the Buyers Health Care Action Group asked employees to rate the quality of care and service they received from their health clinics. Overall, 75 to 85 percent of the 16,000 people who responded said they had no problems getting the care they needed when they needed it. Most of the care systems, including Allina Care System, Fairview Physician Associates, and Park Nicollet, ranked average in the survey. ■

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Research & Innovations

Studies Link Frog Deformities in Minnesota to Pesticides

Agricultural pesticides have been associated with some frog deformities in Minnesota, according to two studies published in the October issue of *Environmental Toxicology and Chemistry*. Researchers spent 18 months analyzing Minnesota pond water, and the results suggest that combinations of chemicals appear to be causing malformations of frogs' limbs, eyes, and mouths.

"At this point we can't say that this is something that applies only to frogs," said Jim Burkhart, co-author of the studies and a biochemist at the National Institute of Environmental Health Sciences in Research Triangle Park, North Carolina.

Scientists found many active chemicals—several of which are products from pesticides—in water and sediment samples from six Minnesota ponds. Burkhart said the most intriguing finding was that some of the compounds appear to be more toxic in natural waters in Minnesota than in laboratory solutions.

'U' Physicians Test New Sickle Cell Therapy

University of Minnesota physicians have developed a new approach to treating patients with severe sickle cell disease, a disorder found primarily in black patients and that can result in chronic pain, stroke, and early death. A team of university scientists developed a new treatment regimen that reaps the benefits of

bone marrow transplantation without chemotherapy or radiation. As a result, the procedure is safer, causes no significant side effects, requires fewer days in the hospital, and is less expensive than traditional bone marrow transplants.

In August, university physicians were the first in the world to treat a child with sickle disease using the new treatment. A 9-year-old girl from Buffalo, New York, was given bone marrow from her 12-year-old brother. "Rather than relying on high doses of chemotherapy to destroy the patient's diseased marrow, we rely on the donor's immune system to reject the patient's marrow and gradually replace it," said John Wagner, M.D., associate director of the university's Blood and Bone Marrow Transplant Program.

Traditional Treadmill Test Is Still Effective, Mayo Study Finds

A study by Mayo Clinic cardiologists found that the traditional treadmill test often can predict the risk of dying from heart disease in patients with mildly abnormal EKG scores. The test could distinguish between patients who were at very low risk and those at high risk; it was more difficult to predict those in the middle.

Typically, if patients have an ST-T abnormality, many physicians skip the treadmill test, said Todd Miller, M.D., one of the authors of the study, which was published in the September 15 *Journal of the American Medical Association*. "A lot of people jump right to one of the more expensive imaging procedures," Miller told the *Star Tribune*. But it makes sense to try the treadmill first, he said. Patients classified as low or high risk may not need the imaging tests. ■

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Rural/Urban Differences in Chemical Dependency Treatment

Results from the Minnesota Adult Household Survey

Timothy J. Beebe, Ph.D., Patricia A. Harrison, Ph.D., and James A. McRae Jr., Ph.D.

ABSTRACT

Research at the national level suggests fairly similar rates of substance abuse in rural and urban areas, with data for 1996 showing a slightly higher rate of drug use in urban areas but no difference in the rates of heavy alcohol use. The current study assesses differences between rural and urban areas in substance abuse and dependence, service utilization, and perceived barriers to services in Minnesota. Analysis of responses of a random sample of 7,508 adults stratified by residence reveals few differences between rural and urban settings. While urban residents have a slightly higher (marginally significant) rate of dependence on drugs and rural residents have a significantly greater tendency to talk to clergy about their problem, the subsamples exhibit remarkably similar patterns of abuse, need for treatment, propensity to seek treatment, service utilization, and perceived barriers to treatment.

Americans' perception of rural life as idyllic is only now beginning to change.¹ Rural Americans are confronting social issues (e.g., violence and gang activity) previously regarded as purely urban phenomena.² In a recent Roper survey, rural Americans ranked increased crime, alcohol abuse, and increased use of illegal drugs among the greatest threats facing rural America.¹

In fact, substance abuse in the rural United States is quite comparable to that in large population centers.³ While the rates of illicit drug and heavy alcohol use were similar in urban and rural areas in 1993,⁴ the use of illicit drugs in rural areas had declined by 1996.⁵ This study also found similar rates of bingeing and heavy alcohol use in rural and urban areas but considerably higher rates of monthly alcohol use in urban areas.⁵

Whatever the differences in patterns of use, there are a number of elements unique to rural life that present challenges to the delivery of substance abuse services in these areas. First, the availability of treatment services varies with population density and proximity to urban areas.⁶ Second, rural residents may be more inclined than urban residents to use informal services.⁶ Third, in contrast to the anonymity of metro living, rural residents spend a greater part of their lives in direct contact with acquaintances who may judge their behavior,^{7,8} and a lack of privacy is a major barrier to rural service delivery.³ Fourth, rural families are less likely to be insured than urban families and more likely to have higher out-of-pocket expenditures for health

care.⁷ Faced with limited resources, rural residents may choose to be uninsured and delay or avoid medical care.⁹

Approximately 24.8% of the total U.S. population lived in rural areas in 1990.¹⁰ In Minnesota, roughly 30% of the population, or about 1.4 million residents, is classified as nonmetropolitan.¹¹ The extent to which results of previous studies of substance abuse can be generalized to Minnesota is unclear. For example, the chronic economic stress in rural areas that has been identified as contributing to the rising substance abuse rates is a relatively recent phenomenon in much of the Midwest.¹²

The specific topics addressed in the current study are differences between rural and urban areas in Minnesota in 1) the need for substance abuse treatment, 2) the types of services utilized, and 3) the perceived barriers to treatment. Understanding the nature and distribution of the state's substance use problems and service delivery is important for treatment needs assessment, development, testing, and dissemination of effective prevention and treatment interventions, and allocation of resources.¹³

Methods

The data are from the Adult Household Survey, conducted by the Gallup Organization under contract with the Minnesota Department of Human Services. The survey was administered to a random sample of 7,508 Minnesota adults stratified by residence (2,320 rural; 5,180 urban). Computer-assisted telephone interviews were conducted with house-

holds selected by Random Digit Dialing. Eligible adult respondents were chosen at random from the selected household using the "most recent birthday" method. To control for seasonal variations in use of alcohol and other drugs, data collection spanned a 12-month period (September 1996 to August 1997). The overall response rate was 64%. Since they do not include institutionalized and homeless people, household surveys tend to underestimate rates of abuse and dependence. This survey reflects the demographic distribution of Minnesotans reasonably well but underrepresents the poor, who are less likely to have telephones.

The Adult Household Survey is based on the Diagnostic Interview Schedule Substance Abuse Module,¹⁴ modified by staff at Harvard Medical School for administration over the telephone. The core variables for the Adult Household Survey consist of items required to assess substance use disorder and treatment needs according to DSM-III-R.¹⁵

Need for treatment is determined by diagnostic criteria for substance abuse or dependence. Current diagnoses are defined by presence of symptoms in the past 18 months. A diagnosis of dependence requires meeting three of the nine DSM-III-R criteria, which include symptoms such as tolerance, withdrawal, problems in the critical realms of life that result from excessive use, and failed attempts to control substance use. Dependence symptoms must have persisted for at least one month or must have occurred repeatedly. A diagnosis of substance abuse requires meeting at least one of the two following criteria in the absence of a dependence diagnosis: continued use despite recurrent social, occupational, psychological, or physical problems; or recurrent use in physically hazardous situations. Individuals are judged to need treatment if they meet a diagnosis of dependence and/or abuse for at least one substance; treatment need is substance-specific (i.e., need for alcohol treatment only, need for drug treatment only, and need for both alcohol and drug treatment).

Residence mirrors the designations of metropolitan/nonmetropolitan

Table 1

Percentage distributions of demographic factors by residence

Demographic Factor	Residence*		
	Urban	Rural	Total
Race (% white)	93.3	97.6	94.6
Age (% 18-44)	58.1	49.6	55.5
Gender (% female)	51.4	52.0	51.6
Education (% high school +)	93.8	87.9	92.0
Employment (% employed full time)	60.9	52.6	58.3
Marital Status (% married)	63.4	68.3	64.9
Income (% \$40,000 or over)	56.0	37.9	50.4
General health (% good)	82.6	79.9	81.8
n of subjects	5,188	2,320	7,508

*With the exception of gender, all differences are significant at $p < .05$.

used by the Minnesota State Demographer.¹¹ The urban area includes all counties in the Minnesota portions of the seven metropolitan areas of Duluth, Grand Forks, La Crosse, Minneapolis-St. Paul, Moorhead, Rochester, and St. Cloud. The rural area consists of the remaining 69 counties.

Service utilization options include formal treatment, such as that received in a hospital or halfway house, and informal treatment. The latter includes peer-support groups such as Alcoholics Anonymous; therapy or counseling from a psychiatrist, psychologist, social worker, or counselor outside a formal program; and talking to clergy outside a formal program. Because the definition of treatment need focuses on current diagnoses, only utilization within the past 12 months is assessed.

Perceived barriers to treatment include: 1) transportation was difficult, 2) the nearest program was too distant, 3) program hours were inconvenient, 4) facilities were full, 5) respondent could not get the desired type of treatment, 6) respondent was on a waiting list and decided not to participate by the time an opening was available, 7) respondent could not pay for treatment, 8) facilities were not designed to accommodate respondent's disability, 9) re-

spondent did not know where to go or whom to call, 10) respondent was deterred by too much red tape or hassle, 11) program did not have counselors from the respondent's ethnic or language group, 12) program was not sensitive to the special needs of women (female respondents only), and 13) program lacked the special services needed by respondent.

The data are weighted to correct for unequal selection probabilities of households and individuals. Analyses consist of chi-square tests for rural/urban differences in diagnoses, treatment need, service utilization, and perceived barriers to treatment.

Results

As shown in Table 1, the characteristics of respondents in rural and urban areas are quite similar. Respondents in all areas tend to be white (94.6%), to have at least a high school diploma (92%), to be employed full time (58.3%), to be married (64.9%), and to be in good general health (81.8%). The largest differences between rural residents and their urban counterparts pertain to age, education, and employment: Rural residents are less likely to be young, to have a high school education, to be employed full time, and to have an income of at least \$40,000 per year.

Table 2 provides estimates of cur-

Table 2

Percentage distributions of abuse, dependence, and treatment need for alcohol and other drugs by residence

Condition	Residence		Total
	Urban	Rural	
Alcohol			
Dependence	2.3	2.5	2.3
Abuse	1.6	1.6	1.6
Other Drugs			
Dependence*	0.6	0.3	0.5
Abuse	0.1	0.1	0.1
Treatment Need			
Alcohol treatment only	3.6	3.9	3.7
Drug treatment only	0.3	0.3	0.3
Both alcohol and drug	0.3	0.2	0.3
n of subjects	5,188	2,320	7,508

*.10 > p > .05.

Table 3

Percentage distributions of services used by respondents in need of treatment, by residence

Service	Residence		Total
	Urban	Rural	
Sought any help	12.9	17.3	14.3
Received formal treatment	4.8	7.9	5.8
Peer-support groups such as AA	7.1	6.3	6.9
Therapy or counseling	4.2	6.1	4.8
Talked to clergy*	2.3	7.0	3.8
n of subjects	219	103	322

*p < .05.

rent abuse, dependence, and treatment need for alcohol and other drugs. More respondents exhibit problems with alcohol than with other drugs, and, for both alcohol and drugs, more respondents exhibit dependence than abuse. This latter difference is largely definitional, since a diagnosis of dependence supersedes a diagnosis of abuse. Consistent with the higher prevalence of alcohol diagnoses, respondents are more likely to need

treatment for alcohol only (3.7%) than drugs only (0.3%) or both alcohol and drugs (0.3%). The estimates of abuse, dependence, and treatment need do not differ significantly by residence, although the difference in dependence on other drugs is marginally significant. This latter finding dovetails nicely with the finding from the National Household Survey on Drug Abuse of greater use of drugs in urban areas in the nation as

a whole in 1996.⁵

The comparability of findings from state and national data extends to the report that urban residents are more likely to drink but not to exhibit greater dependence or abuse.⁵ This implies that among those who drink, being rural carries greater risk of developing problems with alcohol.

Table 3 provides the service utilization patterns for those respondents meeting diagnostic criteria for substance dependence or abuse. In general, very few people with a current diagnosis of dependence or abuse for either alcohol or other drugs seek help for their problems, and the propensity to seek help does not vary significantly by residence. The most commonly chosen service is peer-support groups (6.9%), followed by formal treatment (5.8%), therapy or counseling (4.8%), and talking to clergy (3.8%). The only significant difference is that rural residents are more likely than their urban counterparts to talk with clergy.

The barriers to treatment do not vary across rural and urban residence (data not shown). The most frequent barrier is that respondents do not believe that the problem merits assistance; 91.8% of those with a diagnosis of abuse or dependence denied needing help with their problems. Among those who responded that they did need help, approximately one in five cited financial barriers, too much red tape, or inability to get the desired type of treatment.

Discussion

Current dependence and abuse rates for alcohol and abuse rates for other drugs do not differ between rural and urban settings in Minnesota. The rate of dependence on other drugs is higher in urban areas, but this difference is only marginally significant. That Gfroerer⁵ found a similar difference at the national level in the same year heightens our confidence that the difference in Minnesota is real and not simply the result of sampling error. Rural and urban residents needing treatment exhibit similar patterns of service utilization, although rural residents demonstrate a greater tendency to talk to clergy. Regardless of residence, only 14.3% of respondents

who need help seek it. This suggests that careful attention to treatment barriers is warranted.

Of these barriers, not recognizing the need for treatment is the most prevalent. In a sense, then, the main barrier to treatment is attitudinal, and getting treatment to those who need it will involve convincing them that their patterns of abuse are problematic and can be effectively treated. Similarly, Grant reports that attitudinal factors such as lack of confidence in the efficacy of treatment, fear of stigmatization, and denial constitute the primary obstacles to seeking treatment.¹⁶

With respect to nonattitudinal factors, the relatively frequent mention of financial barriers implies that expanding insurance coverage to include behavioral health benefits for all Minnesotans would reduce the unmet need for treatment. Likewise, streamlining the process of admission could make services more accessible, since a substantial proportion of those who believe that they need help cite the existence of too much red tape and hassle as a barrier. Finally, the finding that respondents could not get the type of treatment they want is of limited value; it is unclear what types of services they would want, since the survey did not have open-ended probes on this topic. Overall, coupled with the comparable rates of service utilization, the finding of no rural/urban differences in barriers to treatment suggests that the rural access problem that has been found in other studies^{6,12} is less of a problem in Minnesota. **MM**

Acknowledgments

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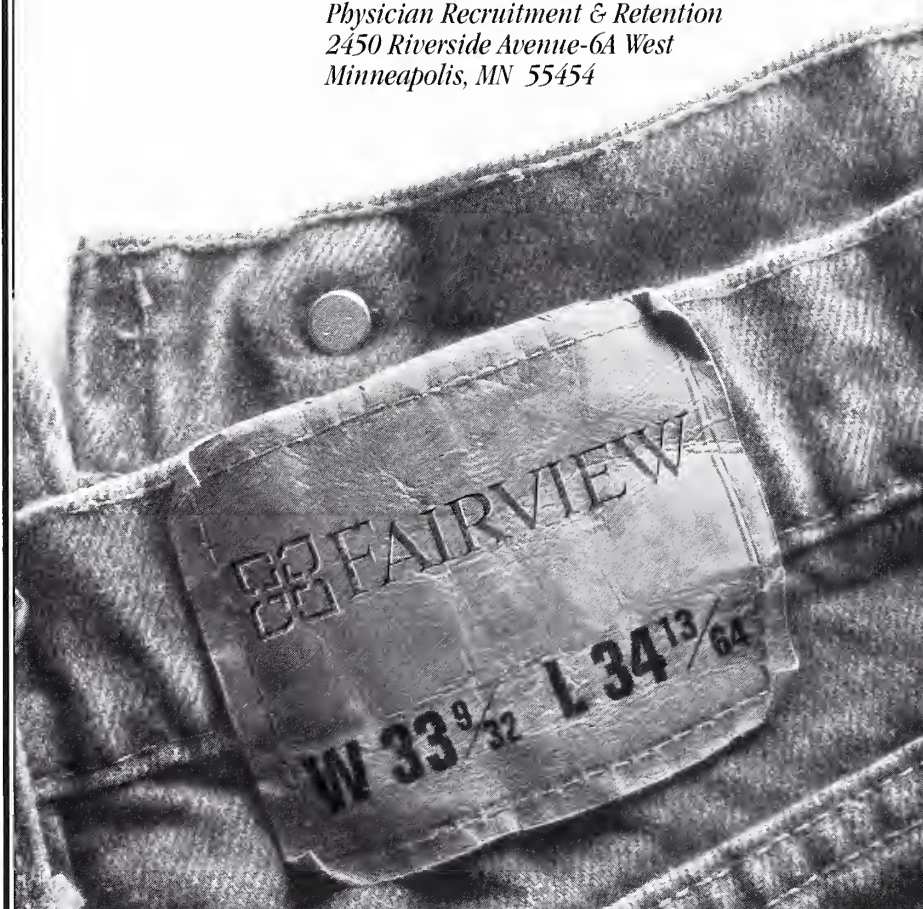
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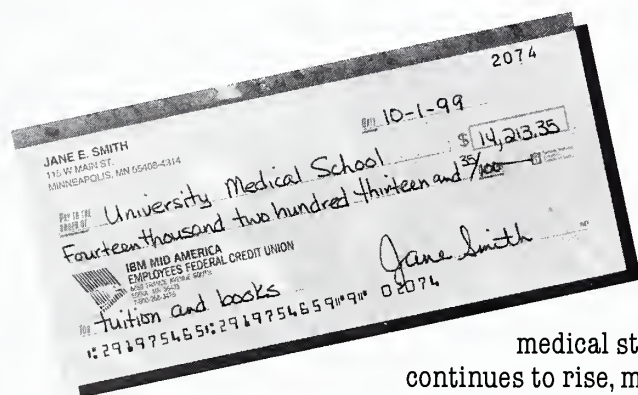
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Can We Predict Recovery in Chronic Fatigue Syndrome?

Alfred M. Pheley, Ph.D., Daniel Melby, M.D., Carlos Schenck, M.D.,
Jack Mandel, Ph.D., and Phillip K. Peterson, M.D.

ABSTRACT

Purpose: To determine if selected demographic or clinical features of chronic fatigue syndrome (CFS) are associated with recovery.

Patients and Methods: A follow-up questionnaire was mailed to 341 patients who had been ill on average for nine years to ascertain "recovery" rate (defined as self-reported recovery on a visual analog scale). Baseline demographic and clinical features (functional status and psychological status) recorded at the time of the initial (baseline) clinical visit were analyzed for their association with recovery at the time of follow-up.

Results: Of the 177 patients who responded to the follow-up questionnaire, only 21 (12%) reported "recovery." Patients with higher levels of physical and social functioning and lower levels of anxiety and obsessive-compulsiveness at baseline were more likely to report recovery at follow-up ($p < 0.05$). No specific demographic characteristics were associated with recovery.

Conclusion: These findings support previous research that complete recovery from CFS is rare and that patients with less severe illness at the initial clinic visit are more likely to have a positive prognosis for recovery. However, considerable overlap in illness severity was observed between the recovered and nonrecovered groups, suggesting that accurate prediction of recovery in individual CFS patients is not currently feasible.

Chronic fatigue syndrome (CFS) has eluded attempts to define its pathogenesis and, as a result, physicians have continued to rely on case definitions for the diagnosis. The Centers for Disease Control and Prevention (CDC) provided the first CFS definition in 1988,¹ with a revision in 1994.² Both definitions emphasized the chronicity of the illness (symptoms must be present for at least six months) and underscored its disabling nature. Subsequent studies using the Medical Outcomes Study Short Form-36 (MOS SF-36) to assess functional status have documented profound impairments in physical, social, and other quality-of-life domains.^{3,4}

Literature on the natural history of CFS is limited. In most studies examining CFS patients using operational definitions, only a minority of patients have shown improvement over time; reports of complete recovery are rare. Rates of improvement have ranged from 17% to 63% of patients, while total recovery generally appears to occur in less than 10% of patients.⁵⁻⁸

Studies reporting predictive factors of CFS prognosis have found that certain patient characteristics are associated with poor outcomes. These indicators include older age,⁵⁻⁸ lower education,⁵ lifelong dysthymia,⁵⁻⁸ and higher intensity of fatigue.⁶ The majority of studies have also found that poor prognosis is related to prolonged duration of symptoms.⁵⁻⁸ No study has reported the progress of the illness over time.

The Department of Social Security in Great Britain formed an expert group to reach consensus on factors that predict CFS prognosis.⁹ In 1996, this group concluded that chance of recovery was predicted by 1) a definite history of viral illness with un-

complicated psychological background, 2) a history of evolution toward recovery, 3) an early diagnosis of CFS-associated physical and psychiatric disorders, and 4) a management regimen that concentrates on lifestyle modification. Factors associated with poor prognosis were 1) onset of illness without clear precipitating factors, 2) severe and unremitting symptoms, 3) a delayed diagnosis or self-diagnosis, with the patient convinced of a single cause, and 4) a management regimen overemphasizing complete rest or a rapid return to pre-illness levels of activity.

While all investigators agree that some improvement does occur in many patients with CFS, the percentage of patients who feel they have returned to their premorbid state of good health is still debated, and clinicians do not have guidelines to help ascertain prognosis in these patients. This study examines a database established in Minnesota in 1988 to determine if any demographic or clinical features of CFS patients would predict longitudinal outcomes and to ascertain whether these data agreed with other investigators' findings.

Methods

SETTING AND SUBJECTS

The Minnesota Regional Chronic Fatigue Syndrome Research Program at Hennepin County Medical Center (HCMC) was established in 1988,¹⁰ shortly after the CDC provided the first case definition of CFS. HCMC is an academic teaching hospital primarily serving the Twin Cities metropolitan area. Physicians refer patients to the Research Program from Minnesota and surrounding states for second opinions about a CFS diagnosis and for potential entry into the research registry for subsequent

studies. At the time of this study, 341 patients who met the 1994 CDC case definition of CFS² were being tracked in the clinic database. For each of these patients, the CFS diagnosis was established through medical, psychometric, and psychiatric assessments to rule out alternative explanations for fatigue. Patients given other medical or psychiatric diagnoses were excluded from the registry.

PROTOCOL

A self-completed follow-up questionnaire was developed that contained two questions of interest to this project, with responses indicated on a 10-cm visual analog scale (VAS). The first question asked patients to rate their fatigue in the previous month; the 0 anchor on the VAS represented "No difficulty," while 10 represented "Couldn't be worse." The second question asked patients to rate their degree of recovery from CFS since the beginning of the illness, with 0 representing "No recovery or worse" and 10 representing "Completely recovered."

In October 1996, the questionnaires, along with a self-addressed, stamped envelope to facilitate return, were mailed to all 341 patients in the database. Upon return, the questionnaires were entered into electronic files, which were linked to the HCMC CFS clinic database for analysis. The database contains information from the baseline clinical encounter, including demographic characteristics, psychological profiles (Beck Depression Inventory,¹¹ Zung Self-rating Anxiety Scale,¹² and the Symptom Check

List-90 [SCL-90]),¹³ and functional assessment (early version of the MOS SF-36).¹⁴

ANALYSIS

All analyses were completed using SPSS version 6.01. A conservative

cutoff for recovery was established: Patients responding at 8-cm or greater on the VAS recovery question and less than 3-cm on the fatigue question were classified as recovered, while those below 8-cm or with fatigue greater than 3-cm were considered

Table 1

Demographics of CFS patient respondents and nonrespondents

	Respondents (N=177)		Nonrespondents (N=164)		p*
Mean (s.d.) age in years at illness onset	33.9	(11.2)	33.3	(10.6)	0.48
Gender, N (%) female	138	(78.0)	125	(76.2)	0.72
Education, N (%) > high school graduate	143	(80.8)	124	(75.6)	0.25
Marital status, N (%) married	97	(54.8)	85	(51.8)	0.58
Race, N (%) Caucasian	175	(98.9)	162	(98.9)	1.00
Working at baseline visit, N (%)	90	(50.8)	99	(60.4)	0.08
Duration of disease in years at survey (s.d.)	9.4	(5.3)	8.4	(4.5)	0.17

*P value of test statistic comparing patients who returned the study questionnaire (respondents) and those who did not (nonrespondents); t-test for age, disease duration, and chi-square or Fisher's Exact Test (as appropriate) for other variables.

Table 2

*Comparison of patient characteristics of respondents meeting and not meeting the study criteria for recovery**

	Recovered (N=21)		Not Recovered (N=156)		p†
Mean (s.d.) age in years at CFS onset	31.8	(13.8)	34.2	(10.8)	0.38
Mean (s.d.) age in years at follow-up (s.d.)	41.8	(10.5)	43.6	(11.3)	0.49
Gender, N (%) female	13	(61.9)	125	(80.4)	0.09
Education, N (%) > high school graduate	19	(90.5)	124	(79.5)	0.38
Marital status, N (%) married	9	(42.9)	88	(56.4)	0.24
CFS duration in years at clinic baseline (s.d.)	3.7	(6.7)	4.3	(4.9)	0.59
CFS duration in years at follow-up (s.d.)	9.6	(7.6)	9.3	(4.9)	0.86
Employed at presentation, N (%) (5%)	14	(66.7)	76	(49.4)	0.06

*Recovery was assessed on a 10-cm VAS, with 0 representing no improvement or worsening of illness and 10 representing complete recovery. Recovery for this study was defined as a patient assessment of recovery on the VAS of >8-cm and a fatigue level of <3-cm.

†P value for t-tests comparing group means.

Table 3

Comparison of functional status at initial visit of patients meeting and not meeting the study definition for recovery†*

	Recovered (N=21)		Not Recovered (N=156)		p‡
Physical functioning	68.5	(15.2)	58.9	(15.3)	0.01
Social functioning	53.2	(18.7)	42.8	(19.7)	0.02
Health perceptions	34.0	(14.7)	30.9	(14.2)	0.37
Mental health	68.3	(14.2)	67.7	(15.2)	0.87

*Functional status was assessed using the MOS SF-36. Lower scores indicate poorer functional status.

†Recovery was assessed on a 10-cm VAS, with 0 representing no improvement or worsening of illness and 10 representing complete recovery. Recovery for this study was defined as a patient assessment of recovery on the VAS of ≥ 8 -cm and a fatigue level of < 3 -cm. All dependent measure values are expressed as mean (s.d.).

‡ P value for t-tests comparing group means.

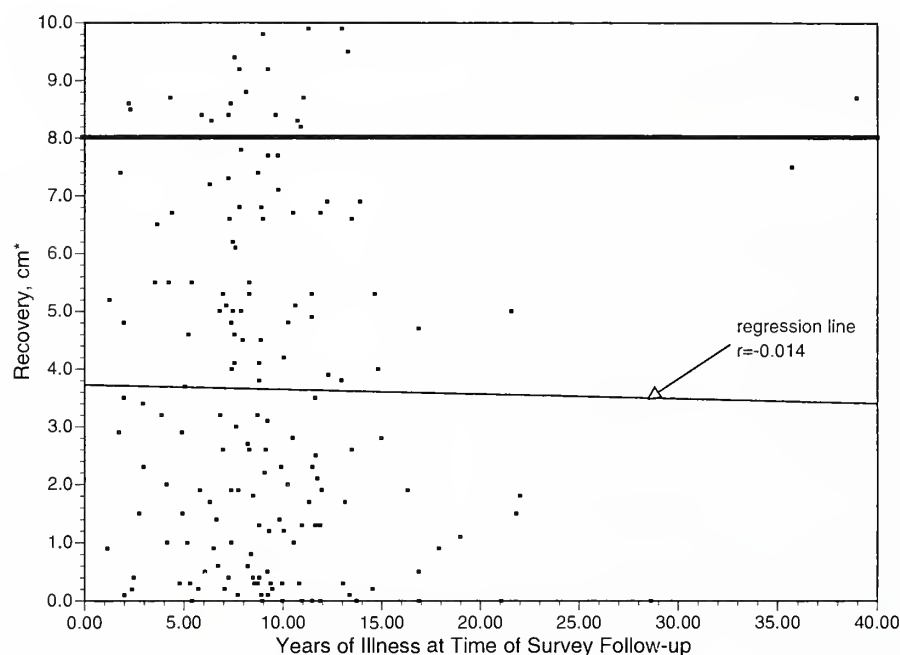


Figure – Relationship of CFS duration and self-reported recovery.

*Recovery was assessed on a 10-cm visual analog scale; definition of recovery is ≥ 8 -cm.

not recovered. Data from the two recovery groups were analyzed using chi-square, Fisher's Exact, or t-test analyses as appropriate.

Results

Of the 341 patients who received questionnaires, 177 (52%) respond-

ed. As demonstrated in Table 1 (page 53), respondents did not differ from nonrespondents in age, gender, socioeconomic factors, or years of illness at follow-up.

Of the 177 respondents, 23 rated their recovery as 8 or greater on the 10-cm VAS. However, two of these

individuals rated their fatigue as > 3 on a 10-cm VAS, leaving 21 individuals (11.9%) who met the study criteria for recovery. With few exceptions, no reliable differences were observed between "recovered" and "nonrecovered" patients. Patient demographic characteristics were unrelated to recovery (see Table 2, page 53). Although the finding was not statistically significant, 80.4% of the patients in the nonrecovered group were females, as compared with 61.3% females in the recovered group ($p=0.09$). Employment status also showed a trend: 66.7% of recovered patients were employed at the initial CFS clinic visit, compared with only 48.7% in the nonrecovered group ($p=0.06$). In contrast to other studies, duration of illness at baseline and at follow-up in this study was unrelated to recovery, with average duration at follow-up just over nine years in both groups ($p=0.59$ and $p=0.81$, respectively). The figure displays the absence of correlation between duration of CFS and recovery score ($r=-0.014$).

Ratings on both the physical and social functioning scales of the MOS SF-36 differed significantly between the two groups (see Table 3), with the recovered patients reporting higher functioning at the initial visit ($p=0.01$ and $p=0.02$, respectively). However, considerable overlap in physical and social functioning was seen between the recovered and nonrecovered groups. Compared with the nonrecovered group, recovered patients initially reported less impairment in moderate activity (2.05 vs. 2.46, $p=0.01$), walking uphill or climbing (2.2 vs. 2.6, $p=0.01$), walking one block (1.5 vs. 1.9, $p=0.02$) and bending, lifting, or stooping (1.6 vs. 2.0, $p=0.01$).

At the initial clinic visit, patients in the recovered group were less likely to have missed work or school in the previous month because of health problems (72.7% vs. 92.9%, $p=0.01$) and reported fewer half days in bed during the previous month (6.9 vs. 11.5 days, $p=0.04$). Also, patients in the recovered group were more likely to report having seen an infectious disease specialist (66.7% vs. 45.2%, $p=0.06$).

On several of the 12 baseline psychological measures, differences were observed between the two groups (see Table 4). At the initial visit, individuals who would later classify themselves as recovered had lower ratings on the Zung Self-rating Anxiety Scale ($p=0.02$) and had lower ratings in compulsiveness ($p=0.04$), anxiety ($p=0.01$), and psychoticism ($p=0.04$).

Discussion

Consistent with the reports of other research groups,⁵⁻⁸ our findings suggest that complete recovery from CFS is uncommon, with only a minority of patients self-reporting marked improvement. In our sample, approximately one in 10 patients recorded a recovery level that approached the patient's premorbid state, a figure within the range of those reported by other investigators.

As with other studies of recovery in CFS that draw data from cross-sectional observations, our findings most likely overestimate the actual recovery. Studies to date have all reported outcomes assessed at only one sample point in time. Thus, these cross-sectional designs do not provide a complete history of the course of the disorder, since it often tends to wax and wane. Therefore, trying to estimate prognosis based on data from a single follow-up point may bias the predictive ability of the data. It would be preferable to know how patients rate their recovery at six months, one year, or even 10 years after the initial diagnosis.

Based on previous natural history studies of CFS⁵⁻⁸ and the British Working CFS Group Consensus,⁹ we predicted that younger age, higher education level, short duration of illness, and less severe illness at the time of initial assessment would be associated with a greater recovery rate at follow-up. Statistical evaluation of our data, however, does not support the prediction that age, education level, or short duration of illness is associated with a greater likelihood of recovery. Our findings of higher physical and social functioning, decreased absenteeism from work or school, and fewer half days

Table 4

*Comparison of psychological assessments at initial clinic visit of respondents meeting and not meeting the study definition for recovery**

	Recovered (N=21)		Not Recovered (N=156)		p†
Zung Self-rating Anxiety Scale	44.6	(7.1)	50.0	(10.0)	0.02
Beck Depression Inventory	11.8	(6.5)	13.8	(7.4)	0.25
Symptom Check List-90					
Somatization	0.93	(0.71)	1.33	(0.67)	0.16
Obsessive/compulsive	0.93	(0.70)	1.34	(0.85)	0.04
Interpersonal sensitivity	0.49	(0.47)	0.56	(0.65)	0.63
Depression	0.88	(0.50)	1.10	(0.64)	0.13
Anxiety	0.43	(0.34)	0.66	(0.63)	0.01
Hostility	0.43	(0.52)	0.53	(0.65)	0.51
Phobia	0.13	(0.24)	0.25	(0.43)	0.07
Paranoia	0.18	(0.32)	0.29	(0.51)	0.34
Psychoticism	0.22	(0.18)	0.33	(0.35)	0.04
General severity index	0.61	(0.38)	0.79	(0.49)	0.10

* Recovery was assessed on a 10-cm VAS, with 0 representing no improvement or worsening of illness and 10 representing complete recovery. Recovery for this study was defined as a patient assessment of recovery on the VAS of ≥ 8 -cm and fatigue level of < 3 -cm. All dependent measure values are expressed as mean (s.d.).

† P value for t-tests comparing group means.

in bed do support the prediction that less severe illness at the time of diagnosis is associated with better prognosis.

When considering the results of our study, one must keep several important caveats in mind. First, as in all other published studies on this topic, our data were derived from patients referred to a specialty center, and this population may select for more severely ill patients in whom recovery is less likely. Second, only 177 (52%) of the 341 patients in our registry returned the questionnaire. Although the demographic features of respondents were similar to those of nonrespondents, it is possible that a different recovery rate would have been found in the nonrespondent group. Third, while our study intended to characterize the natural

history of CFS, we did not control for possible effects of treatments on recovery. Typically, CFS patients try a number of medications and alternative therapies, often following advice from the lay press, friends, homeopathic practitioners, or other resources. Although these therapies have not been proven beneficial in clinical trials,¹⁵ their use might explain some of the differences between outcomes of our study and those of other reports.

Creating another problem in interpreting our data, as well as other studies' data, are differences in the definition of recovery. As noted earlier, recovery rates presented in the literature have ranged from 3% to 19%. Our definition was entirely based on patients' own assessments of recovery. Complete recovery (i.e.,

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10-cm on a VAS) was not achieved by any patient, and only 21 patients (11.9%) rated their recovery as ≥ 8 -cm on a VAS, the cutoff used for the definition of recovery in this study. Clearly, future research should use standardized definitions and appropriate instruments for determining recovery.

Finally, another potential reason that findings across various studies differ is the heterogeneous nature of CFS itself. Not only could underlying etiologies and cofactors differ among patients at different centers, but geographic factors could influence results across centers.

A major goal of this study was to identify demographic or clinical features that could be useful to clinicians in determining the prognosis of patients with CFS. Although features indicating less severe illness at the time of the initial diagnosis characterized the patients who ultimately recovered, these measures are difficult to quantify, and there was considerable overlap in illness severity between the recovered and nonrecovered groups. Thus, we were unsuccessful in finding useful clinical markers of prognosis. Nonetheless, we believe our study has shed light on the important need for a multicenter, longitudinal study employing uniform, validated instruments to assess recovery from this disabling illness. Such a study might prove useful for clinicians in assessing prognosis in patients with CFS.

MM

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Foundation.

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Psychology Training Programs Need Support

Changes in the delivery and funding of health care have put the clinical training of psychologists at risk.

William N. Robiner, Ph.D., A.B.P.P., L.P.

As managed care increasingly dominates health care delivery, Minnesotans have less freedom to obtain their care at teaching hospitals and other educational institutions that train health professionals. This trend is of growing concern for psychology training programs in health settings, such as internships and postdoctoral fellowships, which are the most intensive clinical training experiences for doctoral-level psychologists.

Enrollment in Minnesota's HMOs and other managed care organizations (MCOs) is high. More than 60 percent of the Twin Cities population is enrolled in HMOs. MCOs, which can exclude qualified, licensed professionals from their provider networks, also commonly bar patients from using the services of mental health providers outside relatively limited provider networks. Such restrictions are all the more troubling in light of the primary importance of the relationship between patients and their mental health providers.

Unfortunately, MCOs do not view training health professionals as their responsibility. This position adversely affects training. Restricting patient access to care at teaching hospitals and declining to pay for services provided by trainees compromise the ability of training institutions to fulfill their health education missions.

Less Hands-On Training

As a psychology intern at the University of Minnesota Medical School in the 1970s, I provided several hundred hours of patient care, including psychological assessment, therapy, and consultation. In my current role as director of the program, however, I have witnessed a profound decline in the number of hours of supervised psychotherapy interns are able to provide. Reducing access to patients undermines trainees' opportunities for refining their professional skills and does a disservice to the patients they will treat later.

The erosion of training opportunities in Minnesota during the last few years results from several changes in health care. First, patients whose health coverage (e.g., the State Health Plan) previously allowed them to obtain psychological services in training institutions now meet resistance in obtaining authorization for mental health

services at the University of Minnesota and other accredited training sites. Second, some health plans (e.g., Medica) that do allow patients to see some faculty providers rarely authorize trainees to provide services, even if the services are closely supervised and patients are willing to see trainees. That places greater demands on faculty to increase their clinical loads to subsidize training. Such trends harm training not just in Minnesota, but throughout the rest of the country as well.¹⁻³

Government changes also have reduced training opportunities. Although Medicaid (i.e., Minnesota Medical Assistance) enrollees can obtain services from psychology trainees, Medicaid patients have often been channeled into HMOs, which limits their access to training institutions. Also, although many seriously ill patients enrolled in Medicare programs obtain their health care at teaching hospitals, Medicare policies either forbid or logistically preclude reimbursement for trainees' services to Medicare recipients unless the supervisor is present in the room. This limits opportunities for trainees to learn from direct experience with some of the neediest and most complex patients.

As noted in the table, HMO restrictions complicate and limit training opportunities at most accredited training sites. Decreased patient access to staff and trainees in programs that meet the profession's standards, but for which training funds depend largely on patient revenue, threatens programs' viability. Our internship, like many others in health care settings, receives no direct state or government funding. Unlike training programs for resident physicians, psychology training programs receive no financial support through Medicare Graduate Medical Education (GME) funds.

The consequences of today's MCO and government policies may be grave. The viability of training programs themselves is jeopardized. For example, St. Cloud Hospital discontinued its excellent accredited psychology internship this year because of intensifying financial pressures. This loss is especially disturbing because the program was one of the few training programs outside a major metropolitan area. Future providers may lack the breadth and depth of experience necessary to provide competent care, resulting in possible misdiagnosis or

Table

Patients' access to staff and trainees at Minnesota APA-accredited psychology internship sites

Institution	BCBSM†	State Health	Medica	Preferred One	HealthPartners	Park Nicollet	UCare
Children's Hospital and Clinic	B*	L	S	B	B	B	B
Hennepin County Medical Center	B	—	L	—	—	—	—
Human Services Inc. Washington County	B	—	S	B	B	—	B
St. Cloud Hospital	B	L	S	B	L	L	B
University of Minnesota Medical School	B	—	P	B	L	L	B

*Note: — = no access; S = access to staff; B = access to both staff and trainees; P = access to partial staff (i.e., some, but not all staff); L = limited access requiring referral. The table excludes internships at the Veterans Affairs Medical Center, the Federal Medical Center in Rochester, and the counseling centers of the University of Minnesota and University of St. Thomas, which derive funds from either the federal government or their respective universities.

† Blue Cross and Blue Shield of Minnesota is more typical of indemnity plans; the data exclude Blue Plus plans, which are essentially restricted to the more limited network of the State Health Plan. This table is based on a survey of internship directors. Some data were difficult to categorize. Patient access has varied over time.

inappropriate treatment, with unknown human cost. It is an outcome that can be prevented, however.

What Should Be Done

To ensure that tomorrow's psychologists are as well-trained as today's practitioners, MCOs should increase their support for educating health professionals. Excluding qualified providers and supervised trainees in accredited (i.e., externally reviewed) programs from provider networks is poor public policy. It limits consumers' choices, interferes with coordination of patients' medical and psychological care in teaching settings, and undermines the breadth and quality of training.

The pendulum needs to swing to a more reasonable position that allows or promotes inclusion of faculty in accredited training programs within provider networks and permits trainees to offer supervised services. This would not necessarily require major increases in reimbursement levels for services. It would, however, restore access to needed services and facilitate training consistent with the economical service delivery models championed by MCOs.

The government also can take steps to preserve training opportunities. "Any willing provider" legislation, which increases access to health professionals, is one measure that would help. Another would require third-party payers to give consumers more choices among providers of medical and psychological services. Texas legislation, for example, requires health plans to allow Texans to obtain oncology care at the renowned M.D. Anderson Cancer Center in Houston. Similar legislation in Minnesota could give its residents access to the high-quality care at accredited training health care institu-

tions, thereby protecting their historic mission. Also, government programs, such as Medicare, should develop provisions that allow or streamline reimbursement for services provided by psychology trainees in accredited programs. Medicare GME funding, for example, should be extended to hospitals that sponsor accredited psychology training programs.

It is in the collective interest of patients and the health professionals who treat them to train psychologists well. After all, psychological factors are associated with many health and social problems, such as smoking, obesity, stress-related conditions, teenage pregnancy, and violence. Professional collaborations (e.g., multidisciplinary teams that include psychologists) and psychological interventions enhance many treatment outcomes and can offset some medical costs.

Neglecting the needs of institutions that train psychologists threatens public health. This is a cost we cannot afford and might be crazy to risk. MM

William Robiner is an associate professor in the Department of Neurology at the University of Minnesota Medical School, where he directs the psychology internship and the postdoctoral health psychology fellowship.

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Understanding Boys' Violence

Exhaustive research and affecting interviews contribute to a compelling look at a complex subject in "Lost Boys: Why Our Sons Turn Violent and How We Can Save Them."

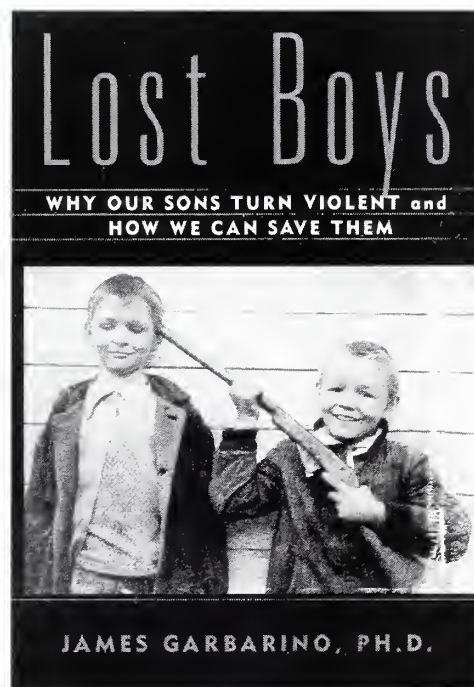
Reviewed by David Walsh, Ph.D.

Few people have as much insight into the hearts and minds of violent boys as James Garbarino, Ph.D., a psychologist and professor of human development at Cornell University. For one thing, he has spent his entire professional career studying them. More important, he has spent hundreds of hours in one-to-one conversations with dozens of boys whom many people would call "predators" or "animals."

In "Lost Boys: Why Our Sons Turn Violent and How We Can Save Them" (Free Press, 1999), Garbarino blends research and conversations to give us a very valuable account of what is happening in cities, suburbs, and small towns across America. The resulting picture is sad and alarming. Yet the book also conveys a sense of hope.

Garbarino taps into a vast research base to show that concern about violent boys is neither misplaced nor exaggerated. Using an epidemiological model, he argues that the recent school shootings signal that the violence epidemic that began in the inner cities is rippling outward and infecting communities where it is least expected.

Garbarino's treatment is exhaustive. Any hope for a single, easy explanation melts away as he catalogs the contributing factors: lack of attachment to a caring adult; abuse at the hands of those who are supposed to protect; too little supervision; exposure to brutal domestic violence; drug- and alcohol-addicted parents



and guardians; easy access to lethal weapons; and a media-dominated culture that trivializes, glamorizes, and encourages violence.

Garbarino explains the psychological transformation that occurs in boys who become violent. To survive in the chaotic and dangerous world they inhabit, they quickly develop the ability to turn off their feelings. The more they do so, the more familiar the "off" position becomes. Over time, these boys can engage in horrifying acts without feeling the emotions normal kids would feel.

Garbarino also refutes some important misconceptions. He insists that these boys are not "born violent." They *learn* violence. He also argues convincingly that they are not

"amoral." They adopt a moral code that makes sense in the twisted world they have to survive in. Garbarino quotes more than one boy as saying, "I just do what I have to do." Retribution and retaliation for real or perceived insults are part of a code that all violent young men seem to follow.

While the research is impressive and Garbarino's psychological insights are sound, it is the conversations with the violent boys themselves that have the most impact. Each boy has a story, and as he tells it, the statistic becomes a real person. Many of these kids never had a chance to be anything but violent. While not condoning the violence, Garbarino helps us understand how it happens. In fact, I found myself wondering whether I would have responded differently in the same situation as the boys.

Don't read "Lost Boys" if you are looking for simple-minded explanations or solutions. There are none. Do read it if you want to understand the etiology of one of our most pressing public health issues.

Albert Einstein said, "Insanity is when we keep doing the same thing, expecting different results." Stemming the tide of youth violence is not easy or quick. But Garbarino makes one thing clear: If we don't start doing things differently with our sons, we will have more gang-related shootings and more Paducahs and Littletons. **MM**

David Walsh is president of the National Institute on Media and the Family, based in Minneapolis.

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Nov. 18-20 **Annual Orthopaedic and Trauma Seminar** Hennepin County Medical Center; Minneapolis Convention Center, Minneapolis, MN. CONTACT: Claudia Miller, 701 Park Avenue, Mail Code 862-B, Minneapolis, MN 55415-1829; 612/347-4220.

Nov. 19 **New Horizons Primary Care: The Management & Treatment of Breast Cancer** HealthEast Office of Research & Medical Education; Sheraton Inn Midway, St. Paul, MN. CONTACT: Annette Anderson, 1700 University Avenue W, St. Paul, MN 55104; phone: 651/232-5104 or fax: 651/641-0683.

Nov. 19 **Emergencies in Primary Care Conference** St. Mary's/Duluth Clinic Health System; Best Western Edgewater East Conference Center, Duluth, MN. CONTACT: Catherine Koski, Medical Education Coordinator, 400 East Third Street; Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3854.

Nov. 20 **Minnesota Society of Neurological Sciences** Minnesota Medical Association and Minnesota Society of Neurological Sciences; DoubleTree Grand Hotel, Bloomington, MN. CONTACT: Lisa Deminsky, Minnesota Society of Neurological Sciences, 22732 132nd Avenue N, Rogers, MN 55374; 612/588-0661.

DECEMBER 1999

Dec. 3 **International Health at the Dawn of the Millennium** University of Minnesota; Windows on Minnesota, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Dec. 3 **Expanding the Promise of Stem Cell Transplantation** University of Minnesota; Ernest Memorial Convention Center, New Orleans, LA. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Dec. 3 **Symposium on Obstetrics and Gynecology** North Memorial Health Care; North Memorial Health Center, Robbinsdale, MN. CONTACT: Kate, North Continuing

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Northern Pines Orthopaedic Clinic, P.A.
111 Golf Course Road
Grand Rapids, MN 55744
Phone (218) 326-8749 or Fax (218) 326-0400



Education, 3500 France Avenue N, Suite 102, Robbinsdale, MN 55422; 612/520-1570.

Dec. 6-10 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Dec. 10 **8th Annual Family Practice Update** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

JANUARY 2000

Jan. 7-8 **MAO Midwinter Conference** Minnesota Medical Association and Minnesota Academy of Otolaryngology-Head and Neck Surgery; Radisson Plaza Hotel, Minneapolis, MN. CONTACT: Robyn Lampright, Minnesota Academy of Otolaryngology-Head and Neck Surgery, 3433 Broadway Street NE, Suite 300, Minneapolis, MN 55413-1761; 612/362-3736.

Jan. 10-14 **Bone and Tissue Tumors** Mayo Foundation; Maui, HI. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.



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FOR FURTHER INFORMATION CONTACT:

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CME

Jan. 21 **Rheumatology Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention Center, Duluth, MN. CONTACT: Catherine Koski, Medical Education Coordinator, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3854.

FEBRUARY 2000

Feb. 5-12 **HealthEast Winter Medical Seminar 2000** HealthEast; Melia Azul Ixtapa, Ixtapa, Mexico. CONTACT: Annette Anderson, 1700 University Avenue West, St. Paul, MN 55104; phone: 651/232-5104.

Feb. 24-26 **Mayo Clinic State-of-the-Art Symposium: Arrhythmia Management** Mayo Foundation; Silverado Resort, Napa, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Feb. 27- Mar. 3 **Brain to Pelvis: 2000—The Seventh Conference** University of Minnesota; Pines Lodge, Beaver Creek, CO. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Feb. 29-Mar. 3 **Whitefish 2000: Timely Issues for the New Millennium** University of North Dakota School of Medicine and Health Sciences and MeritCare Health System; Grouse Mountain Lodge, Whitefish, MT. CONTACT: Whitefish Conference Hotline, 701/234-6913, or e-mail (whitefishconference@meritcare.com).

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18 & 19 Advanced Trauma Life Support (ATLS)

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LOCATION: United Hospital conference Center,
St. Paul, MN

19 Sister Kenny Institute Annual Fall Conference

PRESENTED BY: Rehabilitation Services of Allina Hospitals
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LOCATION: Abbott Northwestern Hospital,
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19 Decisions in Acute Coronary Syndromes

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3 Decisions in Acute Coronary Syndromes

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MARCH 2000

Mar. 1-2 **Geriatric Drug Therapy** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Mar. 3 **Prevention and Management of Atherosclerotic Diseases** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

APRIL 2000

Apr. 7 **Cardiac Arrhythmias** University of Minnesota; Earle Brown Heritage Center, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

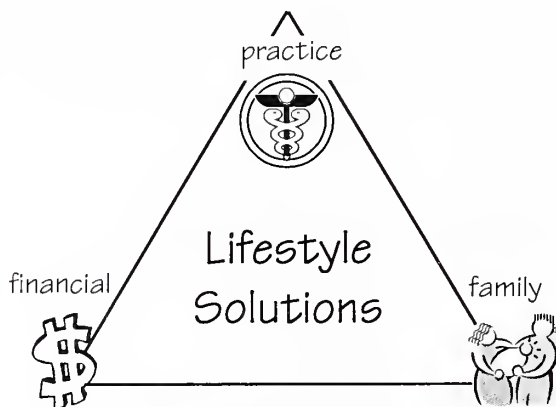
Apr. 14-15 **Annual Ophthalmology Course** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.



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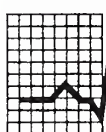
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Mr. Ennis Arntson, Administrator
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The deadline for submitting applications is December 1, 1999. To request a copy of the job description, please contact 612-626-3700 or visit our web site at <http://www.ahc.umn.edu>. To apply, send a letter of application and curriculum vitae to:

Dr. James Moller, Chair, Executive Director Search Committee
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A Grand Unifying Theory

New Year's Eves are a lot like birthdays. We party. We count time. We reminisce. We view the coming year with a blend of anticipation and trepidation. Like each new birthday for those of us who have had



quite a few, the eve of a new century has more counting, more reminiscing, and perhaps more trepidation than anticipation. And, since I know of no reputable claims to previous experience, the New Millennium's Eve will be a singular happening for all of us, with quadruple-digit counting, quantum reminiscing, and queasy

prophesying. In this last *Minnesota Medicine* of the second millennium CE, we examine where medicine has been, where it is now, and where we predict—or hope—it will be.

Since the “Y1K” years Dr. Zydowicz describes (see feature story, page 30), medicine has moved from magic to molecules, from bleeding to bypasses, and from humors to hormones. Sometime between 1000 and 2000 medicine crossed the threshold into the scientific method, which has driven past advances and will drive future progress. It is a past to be proud of.

Yet those 1,000 years of progress were not smooth steps. Indeed, a cynical historian might characterize medicine's past as serial stupidity saved by serendipity and occasional flashes of brilliance and insight. Although such judgments reflect hindsight clarity more than historical accuracy, medicine's past missteps give prognosticators pause, if not fear, on the cusp of a new era.

And today's medical scene might also cloud a seer's crystal ball. In 1999, although American health care is technologically unrivaled, it is also politically debated, socioeconomically unbalanced, organizationally muddled, ethically challenged, and financially strapped. American health care is a cosmos seemingly ruled by chaos.

So here we sit, staring 2000 in the face, wondering first whether our bank accounts will vanish, our elevators will stall, or our planes will stray. After we make it past the first few weeks of 01/00, a date that has assumed mythic proportions, we in medicine will wonder what's going to change.

Guessing, anybody can do. Gambling, ever more people do, though mostly unprofitably. Foresight belongs to seers and necromancers. Prediction seems the province of scientists. Unlike the mass x velocity of the rolling ball in physics lab, however, the future of health care doesn't follow an equation. What we need is a cosmology to explain the health care universe.

Cosmology has been searching for the grand unified theory (GUT) to explain the formation of the universe, a formulation of mesons or superstrings that accounts for all of creation from the Big Bang to the present. Could there be a unifying precept for health care that would quell the debates, unuddle the organizations, balance the social benefits, unleash the finances, resolve the ethics, yet preserve the beneficial march of technology?

I suggest that the GUT for health care is honesty. To solve the conundrum of the American health care cosmos, we have to be honest with one another and with ourselves about what we want and how much we are willing to pay for it. We must be honest about the distorted priorities of government and individual spending. And we must be honest about the limits of technology and progress.

At 12 midnight, 12/31/99, the ball in Times Square will fall as it always does on New Year's Eve. We will all blink and likely find that the apocalypse hasn't occurred. The lights will glow. The elevators will run. We will have a year with a lot more zeros than we're used to. And we'll have many of the same health care dilemmas to face ... honestly.

Happy New Millennium!

—Charles R. Meyer, M.D., Editor-in-Chief

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DOCTORS OF THE NEW MILLENNIUM

*Three medical students
contemplate their future in a
changing medical world.*

BY HOWARD BELL

Tomorrow's doctors will practice medicine like Bones on "Star Trek"—with hand-held computers at the bedside, beeping and churning with templates of care, evidence-based protocols, and electronic medical records, overseen by Orwellian managed care bureaucracies. Yet, armed with intelligence, compassion, and fascination with science, physicians of the future will be little different from those of the past. The dream of having a good life while making a difference in others' lives has not changed, either. Meanwhile, the student body has become more diverse; in 1998 women made up 44.4 percent of the entering medical school class nationally, and members of minority groups made up 34.6 percent of total first-year enrollment—demographics that will likely make medicine more responsive to an increasingly diverse patient population.

We spoke with three doctors of the new millennium—medical students who were playing with Play-Doh back when managed care started shaping the world of medicine in which they will practice. Most students are more worried about their next test than the Patient Bill of Rights, but those we talked to have heard enough to be concerned about the political and economic forces reshaping medicine.

MIKE THOMPSON

Mike Thompson arrived at medical school at Mayo Clinic excited about science, not politics. But he soon learned that the two share the same bed. To ensure that he and other future physicians get their share of the covers, he's been a delegate to the MMA Medical Student Section and the Zumbro Valley Medical Society. He also just completed his term as a student member of the MMA Board of Trustees. Somehow Thompson finds time for all this while pursuing his eight-year M.D./Ph.D. program at Mayo Medical School.

"Medicine is now often controlled by nonphysicians and business interests," he says. "Supporting organized medicine is one way physicians can regain some control and get physicians back to doing what they're good at instead of filling out forms and justifying their decisions."

The 29-year-old Rochester native decided in high school that he wanted to be a doctor. "I've always liked science, but I wanted to do something with people outside the lab," he says. Like most other medical students, he hasn't chosen a specialty yet, but he intends to combine research and patient care. Thompson got hooked on research in high school, when he helped Eric Wieben, Ph.D., in Mayo's Biochemistry and Molecular Biology Department clone a small nuclear-ribonuclear protein involved in RNA splicing. Their work was published in the journal *Genomics*. Thompson earned an honors degree in molecular biology at the University of Wisconsin-Madison before enrolling at Mayo.

In September, Thompson defended his Ph.D. thesis in pharmacogenetics. Why do patients vary in their response to drugs? To find the answer, Thompson studied a family of enzymes that



PHOTOGRAPH BY DAVID ELLIS

metabolize drugs, working in the lab of Dr. Richard M. Weinshilboum, a leader in pharmacogenetics. "Computerized databases for drug interactions and efficacy comparisons will be a huge part of medicine in the future," says Thompson.

Speaking of computers, will the day come when every exam room needs a data port for the physician's palm computer? Many of Thompson's fellow students already use hand-held computers instead of note pads. Soon, says Thompson, computers will guide doctors through bedside diagnosis and drug interactions. "Doctors have to wade through more information than they used to," he says, "but computers help them wade through it more efficiently and may give them more time to spend with patients."

Computers and evidence-based protocols are here to stay, but they're no substitute for a real person, Thompson asserts. "You have to balance technology with humanity. Evidence-based medicine is based on populations, not individuals. You need a doctor to properly design treatments for individuals."

He supports physician unions. "They're not ideal, but it's not an ideal world." Should patients be able to sue managed care organizations? "It seems logical that patients should be able to sue organizations that have hurt them through action or inaction," Thompson says. Although solving problems by lawsuits is a crude way to improve patient care, he believes, it may help put patient care responsibility back in physicians' hands.

Thompson concedes that there will always be conflict between corporate medicine's mandate for cost containment and physicians' desire to do what is right for patients. But if physicians don't fight back, he says, the pendulum will swing too far in the wrong direction. It may already have. "People who go into medicine are smart," he says. "They got into it because they want some autonomy. They see what's wrong with patients and have their own ideas on how to treat them."

Alternative medicine is another red flag for Thompson: "Medicine is being assaulted by non-M.D.s treating patients for nonexistent diseases and treating patients with real problems using treatments that have no basis in science. The nutritional supplement industry has Congress in its pocket. There's no regulation and they lure people in by offering a spiritual component that is often missing in people's lives."

Thompson isn't sure yet where he'll practice.

Most likely he will work as a salaried physician-researcher at a large university or clinic. Wherever he goes, he will be with his fiancée, Kelly, a physical therapist at Fairview-Southdale Hospital in Minneapolis. And you can bet Thompson will stay involved with the issues shaping medicine in the new millennium.

KATIE DONOHUE

What Katie Donohoe has found most surprising about medical school is that it's fun. "All the books you read and movies you see make it look like an awful experience you just have to get through," says the 23-year-old second-year student at the University of Minnesota-Duluth (UMD). "Instead, everything we study interests me. I really want to figure out the answers. And the camaraderie is great. We help each other out."

Donohoe applied to all three Minnesota medical schools, but UMD hooked her. "I got the best feeling there," she says. "They'd call once a month to see how I was doing and they'd call me by my first name. They were friendly and supportive." That's the attitude she hopes to project with her patients once she's practicing.

The Mankato native has known she wanted to be a doctor since grade school. "Science always fascinated me and I loved every trip to the doctor's office—getting explanations for everything," she says. As an undergraduate at the University of St. Thomas in St. Paul, Donohoe majored in biology and served as student body president.

Her favorite part of medical school is physical diagnosis. "It really makes sense to me. I understand how to arrive at a specific diagnosis based on the evidence," she explains. Donohoe recently shared her enthusiasm by teaching a short course in diagnosis to American Indian college students considering medical careers.

Donohoe is getting a taste of third year through mini-rotations, during which she observes physicians doing H&Ps, deliveries, and surgeries. "Getting us out there helps make the classroom learning more relevant," Donohoe says.

Like her fellow students, Donohoe spends part of each day glued to the computer. UMD's entire histology slide collection is on disk, complete with a self-quiz. Want to see a cirrhotic liver? Click on it. No more methyl blue slides under microscopes. Then there's the Internet. Donohoe and her colleagues were challenged to determine which industrial toxin was causing symptoms in a patient in a case study. "We logged on to the National Tire Recycling Association

site and got a list of all the chemicals they use," Donohoe recalls. "It was carbon tetrachloride. Without the Internet, it might have taken us days to track down."

She's looking forward to her preceptorship—living with a rural physician for three days at three different times of the year. "You live with them and follow their exact schedule," she says. "If they play golf, you play golf. If they have a crisis, you work it with them."

As president of the Duluth chapter of the MMA Student Section, Donohoe organized an impressive membership recruiting effort. Eighty percent of this year's first-year class joined the MMA. Forty students

signed up on the first day of recruitment. "Some students feel all they should worry about are their studies, but if you don't try to make a difference, then you can't complain," Donohoe says.

Not one to keep her head in the sand—or the textbooks—Donohoe is already concerned about managed care frustrations. "By the time I'm practicing, I hope some of managed care's problems are figured out and cleaned up," she says.

"I hear stories about doctors not being re-

imbursed and the poor way we handle the uninsured. The relationship between doctor and patient has become a triangle with the payer in the middle."

Like many other doctors of the new millennium, Donohoe believes that physician unions are a necessary evil. "I support them as long as they stay ethical and patient-centered. There just aren't many people knowledgeable about the issues speaking on behalf of doctors."

Donohoe thinks some form of the Patient Bill of Rights is also needed. "There should be several steps between complaint and suit," she says, "some system of appeals to determine if something is truly worth suing over."

As for universal health coverage, she says children might benefit from it, but she is not sure the country is ready for the drop in quality that could occur: "It's a great idea, but even my limited involvement in the medical world has shown me universal coverage is far from ideal."

Medical school is not all work for Donohoe. She studies hard during the week so that she can spend weekends with her fiancé, Joe, a first-year law student at Hamline University in St. Paul.

It's too soon for Donohoe to predict what specialty she'll choose or even what type of practice setting. "I can see myself going back home to Mankato," she says. "Seems like when you're young, all you want to do is leave. Now that I'm older, I'm thinking maybe it's not such a bad place."

JESSICA NYHOLM

At age 23, Jessica Nyholm is one of the youngest second-year medical students at the University of Minnesota. That doesn't intimidate her in the slightest. As the AMA's Student Section secretary for the Twin Cities, Nyholm orchestrated a record-breaking recruitment effort. More than 100 of this year's 165 first-year medical students joined the MMA and the Hennepin or Ramsey County medical societies. Most joined the AMA, too. "Mostly, we have our heads in the books, but we can still make a difference to some degree," Nyholm says. "By joining now, we'll be more aware and educated once we become doctors and can really make a difference."

Nyholm grew up in Montrose, Minnesota, population 1,200, about 45 minutes northwest of Minneapolis. She's known she wanted to be a doctor since ninth grade. A job as a nursing assistant in a local nursing home clinched it for her. "I was always fascinated—what was wrong with this person? What would they do to fix it? Why couldn't it be fixed?" After completing a B.A. in biology at the University of Minnesota–Morris, Nyholm packed her bags for the Cities.

She is pleasantly surprised by the many different types of people she's met in medical school. "We've got people in their 20s and people in their 40s whose kids are grown," she says. "I'm amazed at the variety of backgrounds and experiences people have had before they even get to medical school."

And she's grateful for the camaraderie among students: "Medical school is not nearly as cutthroat and competitive as I thought it would be." Nyholm hopes that bodes well for how her colleagues will treat each other in practice.



PHOTOGRAPH BY DAVID ELLIS

Like other medical students, Nyholm studies a lot. But medical school is not as hard as she feared. "I still have time for a life outside of school," she says. Even so, she rarely sees her husband, Brett, a 26-year-old third-year medical student whom she met in high school. They married a year ago. "For some reason, I thought us both being in medical school would make it easier, but it's hard for us to coordinate social outings or just cleaning the apartment," Nyholm says.

What does she think it will be like to practice medicine? "The clinical medicine course and specialty seminars show us what a typical day is like," Nyholm says. She feels medical school curricula are stronger on science than on the political and economic forces shaping medicine. "Considering all the managed care changes lately, I wish they'd teach us a little bit more about that."

Nyholm is considering a career in general internal medicine. Maybe she will practice back home. She knows she wants to live at least an hour from the Twin Cities: "Practicing primary care in a rural area, I can do more for patients before sending them on." Primary care also fits her personality, which she describes as down-to-earth.

For now, her clinical tutorials are giving Nyholm a taste of what's to come. She shadows a physician who walks her through H&Ps and write-ups. "The clinical stuff's my favorite part," she says. "It's so easy to get lost in the textbooks. You start wondering where you're going with all this."

Keeping a grip on the mushrooming body of medical knowledge will be one of her biggest chal-

lenges once she's practicing. "It seems like sometimes patients hear about it on TV before the doctor does," she notes. Hand-held computers will be useful for taking notes and checking drug interactions and treatment protocols, she believes. At the same time, it's important for doctors not to lose their human touch, she says, noting that some patients see physicians as aloof and overpaid.

Are they overpaid? "Definitely not," she says. "Not when you consider how much time, money, and effort we invest in our careers and not when you consider what we do for people. We sacrifice a lot in our own lives to do good things for others."

Patient care may be suffering a bit under cost-containment initiatives, Nyholm suspects. "I think patients should have the right to sue managed care organizations when there's an adverse outcome caused when the MCO went against the physician's recommendation."

Universal health coverage makes sense ethically and financially, Nyholm believes: "People without coverage present at a later stage of illness, when the cost to treat them is higher. I believe basic health care should be totally free to everyone, except perhaps for a co-payment to prevent abuse of the system."

Nyholm will have plenty of time to find out. She'll likely be practicing medicine halfway through the next century.

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PHOTOGRAPH BY DAVID ELLIS

Howard Bell is a medical writer living in Onalaska, Wisconsin, and a frequent contributor to Minnesota Medicine.

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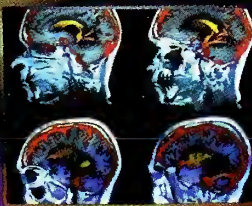
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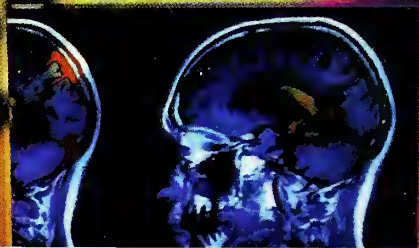
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LOS ANGELES



NEW YORK



Back to Medicine's Future

To succeed, medicine of the future must rediscover the old-fashioned art of caring.

By Alfred F. Michael, M.D.

Illustration by Eric Yang

①②③④⑤⑥⑦⑧⑨⑩

Despite the hazards of playing Nostradamus, we in medical education have no choice but to try to predict the future. Medical students need to have some idea of the kind of world they'll be practicing in. Unfortunately, the track record of medical prophecy is as spotty as in any other field.

In 1977, *The Medical World News* devoted an issue to "Predictions for the Year 2000." It said that, by now:

- *Inheritable diseases would be following infectious diseases into oblivion.* Inheritable diseases are still with us, and so, for that matter, are many new forms of infectious disease, along with a resurgence of some old ones.

- *Breakthroughs would have made possible the prevention of mental illness.* We can control it a great deal more effectively, thanks to new drugs, but complete prevention is still not available.

- *Cancer chemotherapy would be almost completely effective and virtually nontoxic.* It is very

effective in most cases, but still quite toxic, and not yet fully targeted with "magic bullet" precision.

- *Regeneration of bone and some vital organs would be routine.* Not yet ... though we're at the cusp of great steps forward. More on that later.

- *We would be using implantable brain-stimulation devices to control appetite in obesity, induce sleep, and relieve headaches.* Right on the technology, but wrong on the application. There is an implantable brain-stimulation device for relieving the symptoms of Parkinson's disease, but it's expensive and not yet in common use.

- *Slow-release food capsules would allow people to live for weeks on water alone.* A question they forgot to ask: Who would want to?

So we've established that predictions don't always come true. Still, thinking about such things can be a valuable exercise, and in any case, everyone else is doing it, so why not a medical school dean?

As we turn the corner into the new millennium, I see medical education being buffeted by the rapid pace of scientific discovery, the pressures of managed care, and the demands of the assertive medical consumer. For simplicity, I've organized a "Top 10" list of the forces that will affect us in the coming years. With apologies to David Letterman, here they are.

10 The Confluence of Developmental Biology, Neuroscience, and Cognitive Behavior.

We'll begin to find answers to very basic questions like: What controls human development? What genes in our bodies control cognition, behavior, and intelligence? We'll develop a more sophisticated understanding of how the brain and nervous system work. Treatments for developmental disabilities in children, Alzheimer's and Parkinson's diseases, serious mental illnesses, deafness, and blindness will advance rapidly.

9 Medical Technology and Genomics

It was just 46 years ago that Watson and Crick described the structure of DNA. The resulting molecular revolution changed the face of medicine. Now we're seeing another giant step forward as molecular biology meets the microchip. The field of genomics essentially teams up the greatest scientific development of the century with its greatest technological invention. This convergence of molecular biology and computer science helps us understand how multiple genes interact in health and disease and leads to prevention of and effective therapy for diabetes mellitus, cancer, and other diseases.

The baby boom era saw the first major explosion in the use of technology to solve medical problems: the oxygenator (which made open heart surgery a common procedure), the pacemaker, the artificial heart valve (all developed in Minnesota, incidentally—see the story on page 20). We'll see another explosion in medical devices in the new century, but we'll have to look closely. Microtechnology is producing super-tiny instruments, enabling us to do more and more with less and less, and much less invasively.

Diagnostic biochips will need only a drop of blood to read your DNA and determine which inherited diseases are in your future or help guide drug therapy decisions. Gene therapy will soon enable us to repair faulty genes to "cure" certain diseases. The recent demonstration by a group of University of Minnesota scientists that a resurrected inactive gene (Sleeping Beauty) could be reactivated and facilitate the transport of genes has potential implications for gene therapy. Another group, led by

Clifford Steer, M.D., a University of Minnesota physician, will soon embark on a clinical trial to study Crigler-Najjar syndrome (a congenital disease with jaundice) using a nonviral targeted form of gene therapy that corrects the defective genetic code and has been successful in animals with the same disease.

The possibilities for development are limited only by our imagination. Albert Szent-Gyorgy noted that "discovery consists of seeing what everyone else has seen and thinking what nobody has thought."

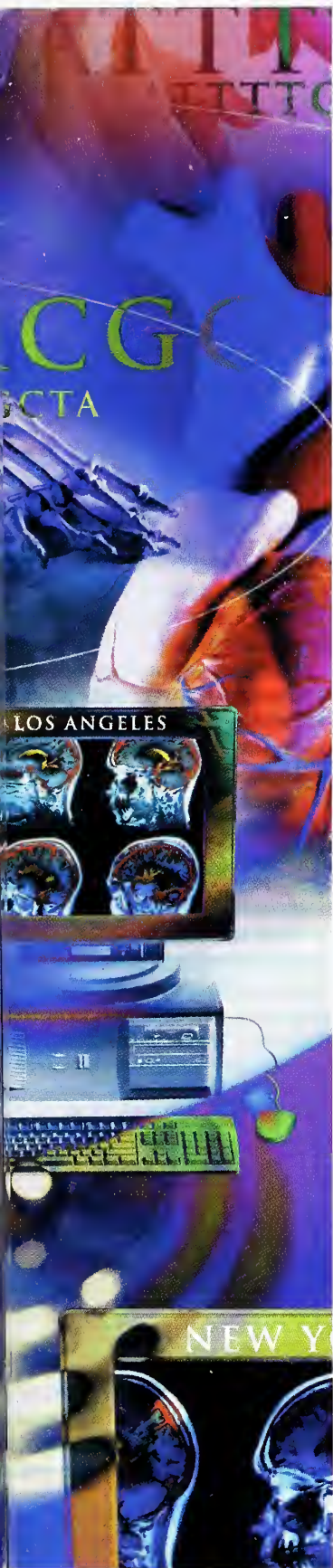
8 Stem Cell Biology

In nature, the stem of a maple leaf predictably sprouts a maple leaf. But suppose that, with a little manipulation, you could program the stem to grow whatever you fancied: a rose, a carnation, an apple.

Maybe we can, and not just with maple leaves. We now know that, before the cells of a fertilized egg differentiate into specific kinds of tissue, those cells are capable of becoming any human tissue—heart, liver, nerve, what-have-you. The next step is to see if we can coax or program these pluripotent, or "totally capable," cells—or stem cells—into becoming what we want them to be. If so, we could grow new heart valves, new nerve tissue for victims of Parkinson's, or new knee cartilage for injured athletes.

But the implications of stem cell research are as eth-





ically challenging as they are exciting, infringing on our deepest beliefs about the beginning of life and the manipulation of life. Stem cells are most abundant in the earliest stages of development, namely in embryos and fetuses, which are the source of raw materials for some of the country's pioneering stem-cell researchers. Is it ethical to use the tissue of an aborted fetus to grow new knee cartilage for a football player?

While that debate rages, promising research by Catherine Verfaillie, M.D., at the University of Minnesota may provide a suitable alternative. She has isolated stem cells in the bone marrow of adult donors that seem to have the same pluripotent traits as stem cells found in embryonic tissue. We are so encouraged by her work that we've made a major commitment to develop a new Stem Cell Institute under her leadership. We believe stem cell biology will revolutionize medical care in a way not seen since the start of the molecular biology revolution.

⑦ Evidence-Based Medicine

This means taking a comprehensive look at the evidence before deciding which therapies to use. Simply put, but not simply done in the age of managed care and bottom-line decision making. What kind and how much evidence will we demand before we say, "We're going to use this new MRI

machine to diagnose depression at a cost of \$1,200 a session?" What evidence will an HMO require before it says, "Yes, all our patients need that and we'll pay for it," rather than have them sit down with a psychiatrist for weeks at a time?

Future doctors will be well served if medical schools ask them such questions as part of their education. Most top schools, including Minnesota, already are. Year two students, for example, are asked to determine the best test for diagnosing a patient with a pulmonary blood clot. Making that judgment requires them to do literature searches—on the Web, in the library, or both—to determine how specific and sensitive various methods are, taking the patient's needs into account.

⑥ Integrative Medicine

In the years when I was in school, referring a patient to a chiropractor or an acupuncturist was unthinkable. Referrals to these practitioners are not uncommon today; some studies are showing clinical improvement for certain disorders.

Is there something to this "complementary" medicine? One thing's for sure: As we approach the new millennium, thousands of patients think there is. In 1997, Americans made 629 million visits to complementary medicine providers, compared with 386 million visits to all primary care physicians.¹ In fact, \$27 billion was spent last year on nontraditional therapies.

Those are numbers that medical educators cannot afford to ignore. At the University of Minnesota, our approach is to be open to nonclassical modalities, but with an informed skepticism and a demand for scientific and critical evaluation. Maybe there is a scientific reason, for example, why St. John's wort may work for depression. Doctors should be open to that notion and certainly should know what complementary medicine their patients are using. At the same time, doctors have a responsibility to protect the health consumer. If something is useless or damaging to human health, doctors need to expose it.

⑤ Distance Care

Although it's not uncommon even today, in future years it will become much easier to treat a patient without being in the same room. My patient could be in an examining room in Hibbing while I sit in my Twin Cities office examining the patient's records. I could review the image on screen, do a Web search of the literature to identify the best treatment, discuss it with the patient, and prescribe a course of action. At a recent symposium, Earl Bakken, inventor of the pacemaker and

founder of Medtronic, predicted that we will greatly increase the use of telemedicine to raise the quality of health care worldwide.

④ Ethics and the Knowledge Explosion

Already discussed in relation to stem cell breakthroughs, ethical questions will challenge us more and more frequently in the next century. To wit:

- Gene mapping may one day enable us to predict breast cancer at the onset of puberty. What do we do with that information? Work with the patient to modify her diet and lifestyle, or suggest radical surgery right then and there? Doctors and patients will need to wrestle with these questions.

- As our life expectancy expands, people are asking more often if the quality of life is always worth the quantity. If not, is there a role for doctors in assisted dying? Should it be legal? Is it moral?

I don't know where society will be on these issues in 20 years, but I know we need doctors—along with scientists, theologians, ethicists, and even politicians—to discuss them today. Under the leadership of Senior Associate Dean for Education Greg Vercellotti, M.D., this year Minnesota's third- and fourth-year medical students participated in "On Doctoring: Science, Medicine and the Social Fabric," a course in which they looked at critical lessons of the past to prepare for the ethical conundrums of the future.

The notion that the population could be "purified" through controlled heredity and the gas chamber was acceptable to many physicians in post-World War I Germany. Which leads to the question: Amid tomorrow's stampede of scientific discovery, will we be wise enough to consider the ethical and social consequences?

③ A Need for Cultural Competence

Our education program requires all our medical students to read Anne Fadiman's "The Spirit Catches You and You Fall Down," about a young Hmong girl



"Amid tomorrow's stampede of scientific discovery, will we be wise enough to consider the ethical and social consequences?"

with epilepsy and the Western pediatricians who treated her.² It is a disturbing tale of what can happen when doctor and patient approach an illness from widely divergent worldviews. It ends in tragedy.

The moral of the story? Practitioners of the 21st century will need a global outlook. They will need to be sensitive to the background of their patients, whether the patients are immigrants, folks from rural areas, gays/lesbians/transgenders, or people with disabilities.

The educational term for it is "cultural competence." Medical schools are now beginning to devote a great deal of time to such issues as how different cultures view death and the impact of those views on the doctor caring for the patient. We have much to learn from the healing traditions of other cultures and from religious traditions in our own and other cultures. Unless we are

sensitive to these customs and needs, we will be ineffective in our own healing arts.

Doctors will need to know more than just customs, beliefs, and cultures, however. Visitors and immigrants are bringing new and Old World diseases to Minnesota, diseases such as malaria and tuberculosis. Doctors need to know how to spot symptoms of sicknesses they may have never seen before. And these patients may be used to different health care practices in their former country. Doctors need to be sensitive to the expectations their patients have about health care and able to explain what they can expect here.

One of the best ways to expand one's worldview is to study abroad. Today only about 10 percent of our students complete any part of their medical training outside the United States. Through our new Office of International Health, we hope to increase that to 25 percent or even 50 percent in the near future. We have active agreements for training with schools in Costa Rica, Chile, and Sweden. University of Minnesota President Mark Yudof just signed one with a school in Israel. Such international exchange agreements among American medical schools are expected to surge in the coming decades.

② Darwinian Struggle among Medical Schools

The 21st century will see an increasing gulf between medical schools with strong research programs and those that focus primarily on training doctors. The danger signals are already evident. A recent study of NIH funding patterns published in *JAMA* showed that schools in states with strong managed care systems (read: Minnesota) appear to fall behind their peers in the amount of NIH research grants coming their way.³ Why? With more time spent treating larger volumes of patients for lower fees, there is simply less time for teaching and research. Further, dollars from clinical practice and hospitals are no longer available to support the Medical School's mission of education and research.

Where will we be at the University of Minnesota in 20 years? We are clearly going to be training medical students—that's a given. But will we be a player in medical and translational research, which brings new therapies to the patient's bedside?

Why not just teach medical students, letting Michigan and Wisconsin do the heavy investing needed for top-flight research? If they achieve a breakthrough in stem cell biology, it'll get to Minnesota soon enough. Why not just focus on training doctors to take care of patients so that our communities will be well served? The answer is threefold.

First, there is an intimate bond between discovery and what is taught. The frontiers of science move rapidly; current medical dogma falls by the wayside in the profusion of new information. Further, the information that we currently pass on to students will be a relatively small piece of the new knowledge gained during the 21st century.

Second, the quality of the doctors graduating from medical school or completing residency and fellow training directly depends on the quality of research done here. Research wins rankings, and high rankings attract the best students and faculty. We want the best to train here! Beyond that, research adds a dimension to the educational



“The frontiers of science move rapidly; current medical dogma falls by the wayside in the profusion of new information.”

experience. It is no coincidence that the schools with the best reputation for training nearly always also have the best reputation for research. Further, their graduates think more critically.

Third, medical research spawns economic activity, which raises living standards. As reported recently in the *New York Times*, the proximity of a research university is the most powerful force in the knowledge economy and in generating high-tech industries. Forty years ago, the University of Minnesota Medical School ranked 15th in the nation, and our research spawned such major employers as Medtronic and St. Jude Medical. Today, we rank about 30th. That still sounds pretty good. But is a medical school ranked in the second quartile as likely to spawn the Medtronics and St. Judes of the 21st century? I have serious doubts.

The federal money we have attracted for research in recent years is holding steady, but that's not good news when you realize that the amount available from that source has increased dramatically. Our funding has not increased proportionally. Research money brought into the state is spent many times again. Ultimately, others will get the first opportunity to use breakthrough treatments with their patients, and others will reap whatever economic benefits are to be had. The University of Minnesota has much work to do to get back into the top ranks. Before that can happen, though, the people of Minnesota need to decide that it's a priority—and demonstrate it through wise and substantial investment. That's something other states have already done.

① A Demand for Professionalism

Beyond the question of scientific evidence, we also need to ask ourselves whether we are paying enough attention to the art of medicine, and if not, are we actually feeding the appetite for alternatives to mainstream medicine? Say “massage therapist,” and the image evoked is of someone with hands on your shoulders.

Say "doctor," and for some the impression is a person with hands on the doorknob.

The pressures of a managed care environment along with advances in science and technology have the unintended consequence of diverting our attention from the art of medicine. In our fascination with high tech, too often we forget a patient's more basic needs for a listening ear, a kind word, a gentle touch. The best doctors in the new century will combine the high-tech world of the future with the bedside manner of the past. It is no easy trick.

A futuristic scenario. You come to a clinic with symptoms of the flu and hand the doctor your high-tech medical card. She plugs in the card, which contains a tiny computer chip with health status and medical DNA information. She finds out if you have the right machinery to take a certain drug, says, "Bang! That's the one for you." She returns your card and e-mails a prescription to your pharmacy. You're done. Quick. Easy. Painless. Now you can get back to work.

But for many others who come to that clinic, it won't be enough. The patients of the 21st century will still need the human touch. No matter how sophisticated our medical centers get, the caring bond between patient and doctor is paramount.

We're blessed with outstanding physicians in Minnesota—many are among the best role models in the country. They have much to teach our students about professionalism and the art of medicine. Partnerships are developing with those who value the public good performed by a medical school and who understand the need to look beyond the next quarter's bottom line in favor of preserving and improving the health of Minnesotans.

So the 21st century will see dazzling scientific and technological breakthroughs, giving us new ways to make diagnosis and treatment more accurate and less painful. But at the end of the day, the essential core of medicine, I believe, remains compassion, understanding, commitment, and advocacy. Amid the many changes, we must remain focused on our goal of improving the quality of life for all people.

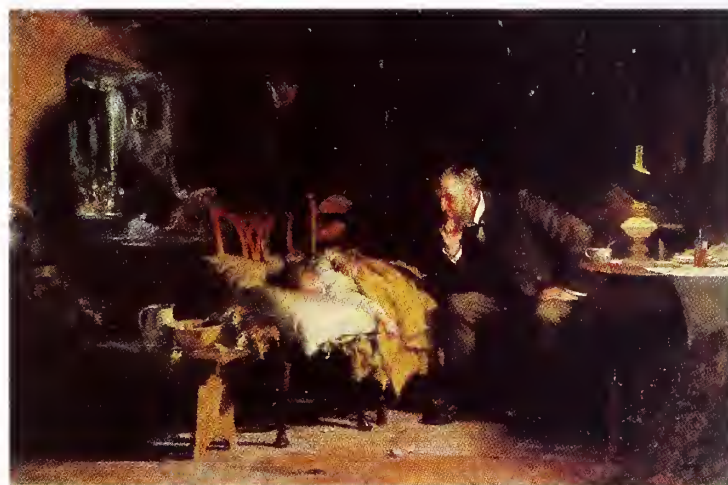
As he was dying of cancer, former *New York Times Book Review* editor Anatole Broyard described what he wanted in a doctor. "I would like," he said, "a doctor who is not only a talented physician but a bit of a metaphysician too, someone who can treat body and soul. I used to get restless when people talked about soul, but now I know better. ... He would mingle his demon with mine; we would wrestle with my fate together."

That is the doctor's bottom line—now, in the new millennium, and probably forever. MM

Alfred Michael is dean of the University of Minnesota Medical School.

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TATE GALLERY, LONDON/ART RESOURCE, NY

The Doctor

Sir Luke Fildes, 1843-1927

Oil on canvas, 1664 x 2419 mm

presented by Sir Henry Tate, 1894

Fildes's popular masterpiece was commissioned by Henry Tate. It was inspired by the memory of the death of Fildes's son in 1877, and by the professional devotion of Dr. Gustavus Murray (1831-1887), who attended him. Fildes gave his painting a happier ending. It shows the moment when, as dawn breaks, the child shows the first sign of recovery. Fildes went to great lengths to make the picture convincing by constructing a cottage interior in his studio in London, positioning the cottage window in front of the studio window. He rose early each day to paint the dawn light as it began to shine through.

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Minnesota's Top 10 Contributions to Medicine

Minnesota physicians have made important contributions to medicine, from the isolation of thyroxine to gastrointestinal suction to pioneering developments in open heart surgery and transplantation.

Leonard G. Wilson, Ph.D.

Minnesota has an unusually distinguished record in medicine. Though far from the large cities of the Eastern seaboard, Minnesota physicians have not cherished a provincial outlook. Many have traveled and studied in Europe, drawing inspiration from the high tradition of Western medicine. Such names as Mayo, Wangensteen, Hench, and Lillehei are famous throughout the medical world.

Minnesota's contributions to medicine have rarely consisted of a single event or the work of a single individual. More often they have involved a complex skein of discoveries and achievements, usually related to work going on elsewhere. Any selection of 10 contributions is necessarily arbitrary; I may have omitted some valuable achievements. Be that as it may, each of the following is historically important.

1. The first cholecystectomy in the United States

At St. Joseph's Hospital in St. Paul on September 24, 1886, Justus Ohage, M.D., using antiseptic procedures, removed a woman's gall bladder.

Four years earlier, at the Minnesota College Hospital overlooking St. Anthony Falls, Frederick Dunsmoor, M.D., had introduced antiseptic surgery to Minnesota in removing a large ovarian tumor from a young woman. Dr. Dunsmoor performed the operation under a carbolic acid spray and used carbolic acid dressings, as recommended by Joseph Lister of London.

By 1886, Minnesota physicians were enthusiastically adopting antiseptic surgical procedures. Antiseptic surgery greatly reduced—indeed, practically eliminated—surgical infections, making new operations such as cholecystectomy feasible.

2. The introduction of bacteriology to Minnesota

In 1896, Frank Wesbrook, M.D., a professor of bacteriology and pathology at the University of Minnesota, became director of the State Board of Health Laboratory, which had been moved from Red Wing to the university campus (and later became the Minnesota Department of Health). Dr. Wesbrook and his assistant, Louis B. Wilson, introduced to Minnesota Widal's test, which provided a reliable way to diagnose typhoid fever. Using Widal's test during a typhoid fever epidemic in Minneapolis in the fall of 1896, Wesbrook and Wilson obtained over 500 positive diagnoses. Their results led them to test the Minneapolis water supply, from which they isolated the typhoid bacillus.



Frank Wesbrook, M.D.

Wesbrook also described the types of bacilli active in clinical diphtheria. He was able to identify individuals who were carrying dangerous forms of the diphtheria bacillus, even if they were themselves healthy. In 1900, Wesbrook and his staff ended a diphtheria epidemic in Park Rapids, Minnesota, by isolating people who were carrying these dangerous forms of the bacillus.

3. Isolation of the thyroid hormone

Edward C. Kendall, Ph.D., isolated the thyroid hormone thyroxine—an early example of the Mayo Clinic's support of fundamental medical research. The isolation of thyroxine permitted the effective treatment of myxedema, or thyroid deficiency, then a common disease throughout the Midwest. At the Minneapolis General Hospital in 1923, George Fahr, M.D., diagnosed a woman suffering from heart failure as a victim of myxedema heart. He cured her with thyroxine. In 1926, Jennings Litzenberg, M.D., professor of obstetrics and gynecology at the University of Minnesota, found that thyroxine could also provide an effective treatment for infertility in women with low metabolic rates.



An early surgery at Mayo Clinic, where physicians adopted the new antiseptic procedures.

4. Isolation of the parathyroid hormone

In 1923, Adolph M. Hanson, M.D., a surgeon practicing in Faribault, Minnesota, isolated the parathyroid hormone, secreted by the parathyroid gland. It could relieve the tetany caused by accidental removal of the parathyroids during thyroid surgery.

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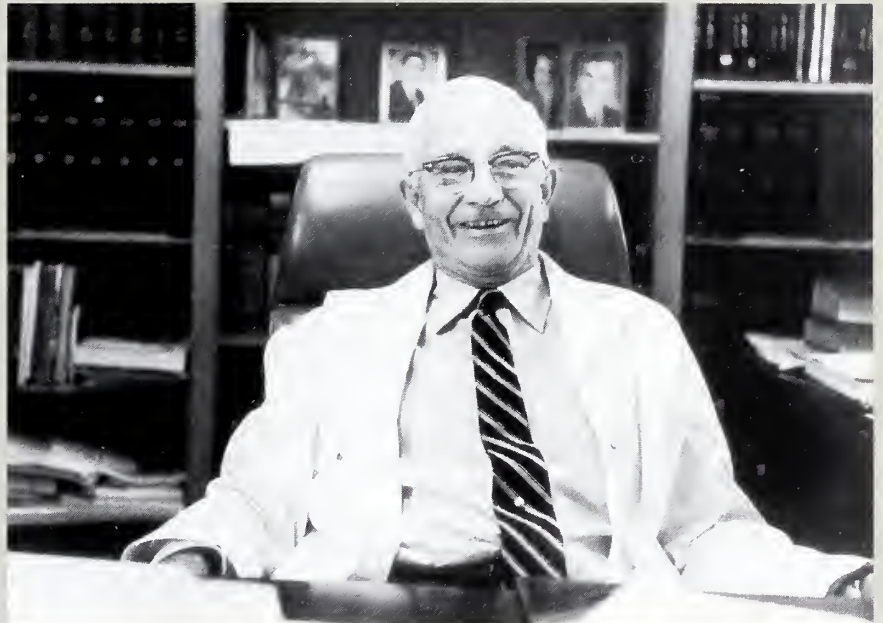
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5. Discovery of gastrointestinal suction

In August 1931, at the University of Minnesota Hospital, Owen H. Wangensteen, M.D., used gastrointestinal suction on an elderly woman suffering from intestinal obstruction. The patient was too feeble and dehydrated to undergo surgery. With suction, her cramps ceased immediately and her condition improved; after 40 hours, Dr. Wangensteen was able to operate to release the obstruction. For other patients, gastrointestinal suction relieved the symptoms of intestinal obstruction, and sometimes the obstruction even disappeared. Gastrointestinal suction proved so beneficial that by 1932 Dr. Wangensteen and his colleagues were using it on all patients who had had abdominal surgery. Since then, gastrointestinal suction has relieved the suffering and saved the lives of many thousands of surgical patients.



Owen Wangensteen, M.D.

6. Discovery of cortisone

At the Mayo Clinic in 1934, Edward C. Kendall, Ph.D., and his colleagues isolated from the cortex of the adrenal gland a hormone essential to life. Kendall subsequently found that this hormone contained several closely related steroid compounds. During the following decade, he worked to synthesize the various compounds. In 1948, Philip S. Hench, M.D., who specialized in rheumatoid diseases at the Mayo Clinic, studied the effect of one of the steroids, Compound E, on patients with severe rheumatoid arthritis. The results were dramatic: Previously crippled patients walked and climbed stairs. In 1949, Hench named Compound E cortisone. The following year, he shared the Nobel Prize in medicine and physiology with Edward Kendall and the Swiss chemist Tadeus Reichstein for "their discoveries concerning the suprarenal cortex hormones, their structure and biological effects."



Philip Hench, M.D. (far right), and Edward Kendall, Ph.D. (second from right) won the Nobel Prize in medicine in 1949.

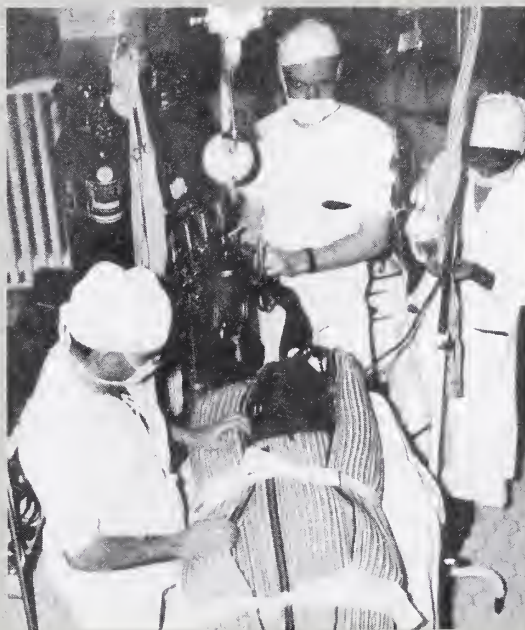
7. The first anti-tuberculosis drug

At the Mayo Clinic in April 1944, William H. Feldman, D.V.M., veterinarian in charge of the animal research laboratories, and H. Corwin Hinshaw, M.D., of the Section of Internal Medicine, received 10 grams of a new antibiotic, streptomycin, from Selman Waksman of Rutgers University. In vitro tests of streptomycin at Rutgers had indicated that it inhibited the growth of the tubercle bacillus, among many other organisms. In a trial of streptomycin on four guinea pigs, Drs. Feldman and Hinshaw found that the drug suppressed the development of otherwise fatal tuberculosis. Dr. Waksman could not give them additional streptomycin to continue their tests, but in July 1944, Merck and Company agreed to make streptomycin for further experiments. In August, Feldman and Hinshaw began to treat a second group of guinea pigs. By January 1945, the two men had proven conclusively that streptomycin could cure tuberculosis in guinea pigs. In 1945, Dr. Hinshaw collaborated with Karl H. Pfuetze, M.D., medical director of the Mineral Springs Sanatorium in Cannon Falls, Minnesota, to give streptomycin to 54 patients with tuberculosis. They found that the drug stopped the progress of tuberculosis in human patients. Streptomycin was the first effective anti-tuberculosis drug.

8. Development of open heart surgery at the University of Minnesota

At the University of Minnesota Hospital on September 2, 1952, F. John Lewis, M.D.; Richard Varco, M.D.; and Mansur Taufic, M.D., cooled the body of a 5-year-old girl to 82 degrees F. They then opened her chest and stopped the inflow of venous blood to the heart for five and a half minutes while they closed an opening in her atrial septum. Ten days after the operation, the child went home, her cardiac murmur gone. It was the first operation performed on the open heart under direct vision. During the next six months, Dr. Lewis and his colleagues used hypothermia to operate on 11 patients to correct defects in the atria. Hypothermia did not provide sufficient time for surgeons to enter the ventricles of the heart, however.

In the laboratories of the University of Minnesota Medical School in 1953, C. Walton Lillehei, M.D.; Morley Cohen, M.D.; and Herbert Warden, M.D., were searching for a means to circulate oxygenated blood through a patient's body while bypassing the heart and lungs. They developed the technique of cross-circulation, in which a donor's heart circulated oxygenated blood to the patient while the patient's heart and lungs were bypassed. On March 26, 1954, Dr. Lillehei and his colleagues closed an opening in the interventricular septum of a 1-year-old boy, using the child's father as a cross-circulation donor. The following year, Dr. Lillehei and his team performed 32 open heart operations, successfully correcting even grave heart defects, such as tetralogy of Fallot.



In 1952, surgeons at the University of Minnesota performed open heart surgery using hypothermia.

In May 1955, Dr. Lillehei replaced the cross-circulation method with a new bubble oxygenator developed by his assistant, Richard A. DeWall, M.D. From 1955 to 1957, more than 350 patients had open heart surgery at the University of Minnesota Hospital with the bubble oxygenator. In 1957, Vincent Gott, M.D., a surgical resident working with Dr. Lillehei, modified the helical coil of the bubble oxygenator so that it fit between two sheets of plastic heat-sealed together. The new oxygenator could be manufactured commercially and was disposable. It allowed trained cardiac surgeons in any modern, well-equipped hospital to perform open heart surgery.

During open heart operations, particularly those on the interventricular septum, the heart sometimes began to fibrillate as a result of injury to its electrical conducting system—the atrioventricular bundle. To overcome fibrillation, Dr. Lillehei obtained an electric heart pacemaker from the physiology laboratory. The equipment had serious drawbacks. It depended on the electric power supply, which could fail. A short circuit might electrocute the patient. Furthermore, the patient could only move as far as the length of the electric cord. Early in 1958, Dr. Lillehei asked an electrical engineer, Earl Bakken, if he could make a battery-powered heart pacemaker that would be portable and independent of the electric power system. Within a few weeks, Bakken created the requested device. He and his brother-in-law, Palmer Hermundslie, incorporated a company, Medtronic, to produce the new pacemaker. By 1960, Dr. Lillehei and his colleagues had used the Medtronic pacemaker in 66 patients.

Although Dr. Lillehei initially thought that the pacemaker



C. Walton Lillehei, M.D.

would be used only temporarily for patients who experienced heart block during surgery, he soon found that many of these patients died suddenly from heart block months later. They needed a permanent heart pacemaker. By 1960, Medtronic had developed an improved miniature pacemaker that could be implanted in the body.

Heart surgery patients' need for pacemakers alerted physicians to the possibility that patients whose hearts had been damaged by myocardial infarctions or coronary artery disease might also be vulnerable to sudden death from heart block. Cardiologists began to prescribe pacemakers for a far larger group of patients. The demand for pacemakers increased enormously, spurring the growth of Medtronic.

The development of open heart surgery also made possible the replacement of heart valves damaged by rheumatic heart disease or other conditions. Dr. Lillehei and his colleagues developed various artificial heart valves, and a considerable industry has developed in Minnesota to produce such valves.

(See the tribute to Dr. Lillehei on page 60.)



*Richard DeWall, M.D., and Vincent Gott, M.D.,
with the plastic sheet bubble oxygenator.*

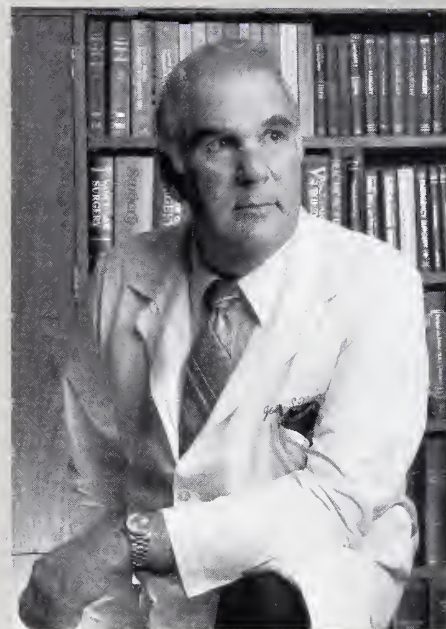
9. Organ and tissue transplantation

At the University of Minnesota Hospital on December 17, 1966, Richard Lillehei, M.D., and William D. Kelly, M.D., performed the first pancreas transplant in a human patient. The patient, a 28-year-old woman, had suffered from diabetes since age 9. Immediately after the transplant, her blood sugar level began to fall, indicating that the new pancreas was secreting insulin. Although the patient died three months later from pulmonary embolism, the operation demonstrated the feasibility of pancreas transplantation. At the University of Minnesota Hospital in the 1980s, David Sutherland, M.D., developed pancreas transplantation into a successful treatment for otherwise intractable forms of diabetes.

At the University of Minnesota Hospital on July 24, 1968, Robert A. Good, M.D., performed the first successful bone marrow transplant, on a 4-month-old boy from Connecticut who was suffering from severe immune deficiency. The boy grew into a normal, healthy adult.

10. The development of antilymphocyte globulin (ALG)

During the 1970s, kidney transplants at the University of Minnesota Hospital achieved significantly better results than those at other transplant centers. The improvement was due largely to the use of antilymphocyte globulin, or ALG. The Department of Surgery manufactured ALG in purified form for immune suppression in the period immediately after transplantation. Chief of Surgery John Najarian, M.D., and his colleagues then used azathioprine (Imuran) and prednisone in small doses to maintain immune suppression. If rejection occurred, they treated it with larger doses of prednisone.




John Najarian, M.D.

The value of ALG, demonstrated so clearly at Minnesota, led surgeons at other transplant centers to request the drug for their own patients. In Washington, D.C., in 1980, James U. Light, M.D., found that in addition to initial immune suppression, ALG also halted otherwise irreversible rejection episodes that prednisone could not stop.

After the new and powerful immune suppressive drug cyclosporine A was introduced in 1979, it was found to be seriously toxic to transplanted kidneys. Nevertheless, when surgeons used ALG for initial immune suppression, followed by cyclosporine A and small doses of azathioprine and prednisone, the results were much better than previously experienced. By 1985, the long-term survival of patients with transplanted kidneys had risen above 90 percent. The number of kidney transplants rose dramatically, and the University of Minnesota began to distribute ALG to transplant centers throughout the United States. ALG played a critical role in establishing kidney transplantation as a relatively safe and reliable treatment for end-stage kidney disease. MM

Leonard Wilson is professor emeritus of the history of medicine at the University of Minnesota. He is the author of "Medical Revolution in Minnesota: A History of Minnesota Medical School" (St. Paul: Midewiwin Press, 1989).

Photos courtesy of Leonard G. Wilson, the University of Minnesota, and Mayo Clinic.



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On Organized Medicine

... It is my opinion that the medical profession is the most needed, most important profession upon the globe today; that this Association is the most important body in this state; that its influence, counsel, knowledge, and guidance is most necessary for the welfare of our citizens, present and future. ... But there is something lacking in the way of knowledge of the facts among the laity; ... the value of the profession, and its discoveries, as a whole, or in particular, are too little regarded. The recommendations of public health boards are too often fatally ignored. The exclusion of learned physicians from many public offices requiring active or advisory participation in preventive medicine: and finally, the restriction hampering the ability and usefulness of the medical department of the United States army, all tend to show that the watchword of this, and the coming year, should be federation. Then shall our power, for usefulness, be so effective and apparent, that the profession may be held in that esteem, which will make the public eager to follow out, or carry on the warfare which shall stamp out disease.

—President's address, F.A. Dunsmoor, M.D., of Minneapolis, Minn.

On Medical Politics

... Dr. Park Ritchie: Every doctor in this state can go to his prospective legislative candidate and tell him, "We will take a fall out of you if you don't go our way." That is the way to do it, and the sooner we do that the better results we will obtain. (Applause.)

Dr. R.N. Jackson: I am afraid Dr. Ritchie is not a practical politician. One or two doctors in a district cannot control its politics.

Dr. E. Phillips: I have a letter from Dr. Brimhall. Dr. Brimhall

wrote me a letter stating the bill would be liberal, and when I received a copy of the bill I found that the old practitioner would have to take the same student examination, and I had no other resource available than to go to the press. I can resign and get out of the Society, but if those things are not remedied I shall write again if I am living.

On the Operating Room

... While the modern hospital, with all its means and appliances, has the general favor both of the profession and the people, there are those even at the present time, who have but partially come to a full appreciation of its advantages. To what extent the apparent reluctance on the part of some people to resort to the hospital for surgical treatment is a result of what is known of the faulty conditions of these institutions in former times and the necessarily unfortunate results of the surgery then practiced may not well be determined, but it is true that the number of those who may be thus affected is rapidly diminishing. It can hardly be otherwise, since the light of present knowledge concerning improved sanitary conditions, greater safety and comfort is showing to all classes the favorable contrast between what belongs to the present hospital and to that of the past. The fact that the modern hospital has come into general favor with the people, and receives a liberal support from the same, speaks well for both the beneficiary and benefactor.

—Franklin Staple, M.D., of Winona, Minn.

On Treating Insomnia

... Opium is the first of these drugs which suggests itself to the mind. It is the oldest, the best known and within its proper sphere the most efficient. The properties of this sub-

stance render it an invaluable remedy in many cases of insomnia, more especially those which are associated with pain, restlessness, and excitability of the nervous system. It probably serves a greater variety of purposes than any other substance of its class. Opium diminishes the activity of the cerebral cells. The continuance of insomnia often produces an irritability of nervous and muscular tissue which can be more notably allayed by opium than by any other remedy. At the same time, the mind is intensely and morbidly active within a restricted range. The patient takes to bed with him his cares and schemes. Various neurotic manifestations arise if this condition continues. The cautious use of opium is of service in modifying the physical conditions upon which these symptoms depend. At all times and with all patients it is our duty to prescribe this substance with circumspection. Proper precautions should be taken whereby the patient may receive the benefits without being exposed to the insidious dangers of the drug.

—John V. Shuemaker, M.D., LL.D., of Philadelphia

On Care of the Newborn

... The human child comes into the world one of the most helpless of newborn creatures, and it is exceedingly fortunate for the race, that as a rule, it has a vigorous voice, for that alone saves it from carelessness or unintentional neglect. After the first strong cry with which it expands its lungs and lays claim to its place in the world, we are willing, as a rule, that it should become quiet and remain an unobtrusive member of the family. The methods which I advocate all tend in that direction, and I will frankly state at the outset that I am much inclined to old-fashioned ways and the belief that it is too often interfered with by modern

methods called scientific. As they are founded on the treatment of between 500 and 600 babies, they may be worth consideration.

—Helen W. Rissel, M.D., of St. Paul, Minn.

On Pelvic Disorders and Mental Diseases

... There was a time in the medical history of the country when the positions of gynaecologists and neurologists upon the subject of operative interference in the pelvis as a treatment for nervous and mental disease were sharply in opposition. The extreme view of one school was that the greater part of mental disturbance in women arose from some pelvic disorder, even when no appreciable lesion could be discovered, and that operative interference, even to the extent of removing apparently healthy organs, was justifiable in the hope of somehow effecting a cure. The extreme view of the other school was that there was no relation between the two disorders, the

nervous system alone being responsible for its own troubles. In the last few years gynaecologists and neurologists have approached much nearer to each other's standpoints and each has learned to appreciate the arguments of the other. We do not find today prominent represen-

tatives of either of these extreme views, but there is still a good deal of difference of opinion as to the exact role pelvic disease plays in mental and nervous conditions. MM

—C. Eugene Riggs, A.M., M.D., of St. Paul, Minn.

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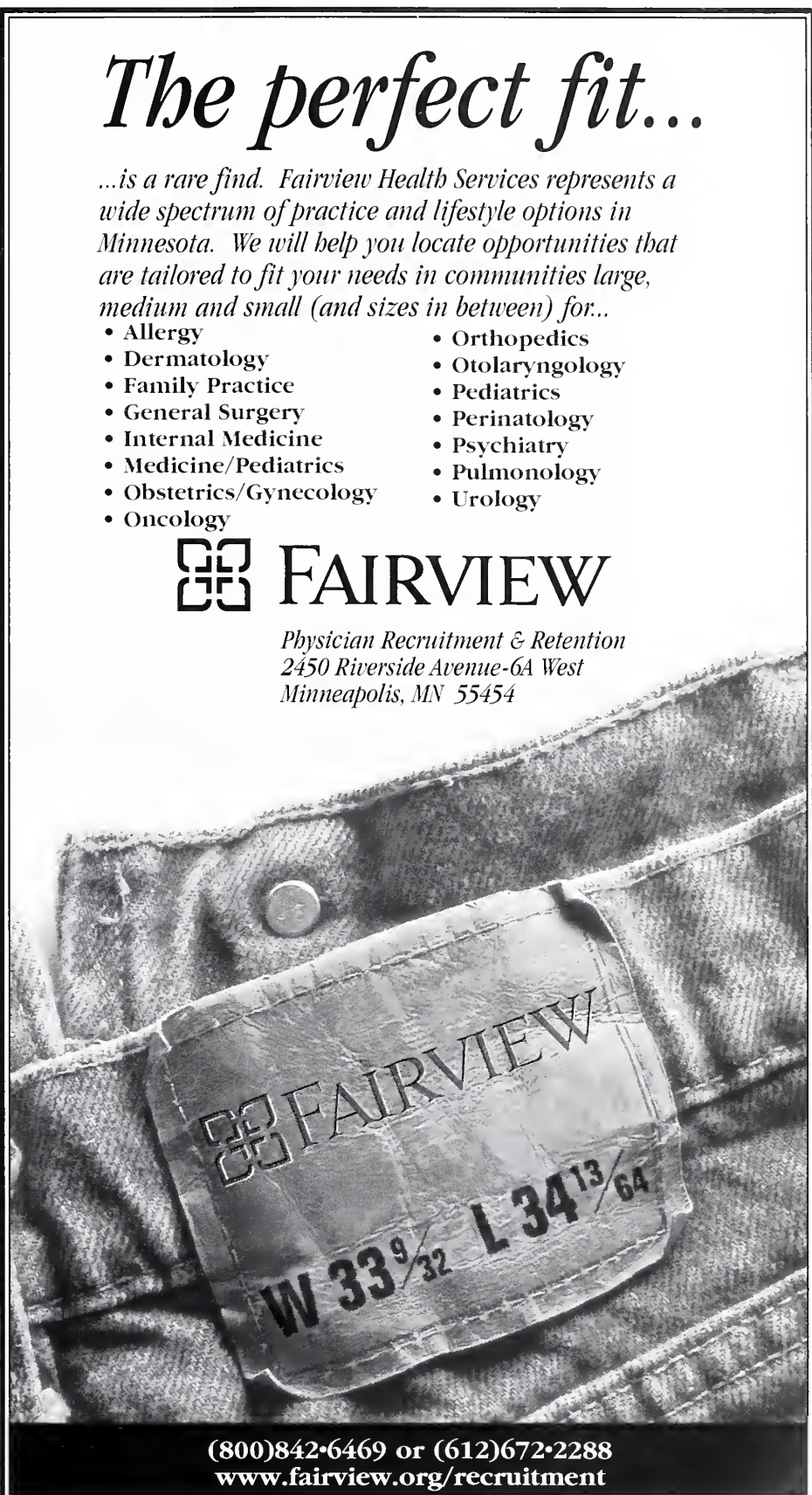
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THE PHILOSOPHY AND PRACTICE OF MEDICINE 1,000 YEARS AGO

Certain medical trends at the end of the first millennium are echoed by the philosophy and practice of medicine today. Then, as now, for example, the mind-body-soul connection underpinned our concept of health and well-being. Although medicine has evolved into a highly specialized, science-based technical discipline in industrialized parts of the world, it has remained a mystical, spiritual, folk-based art elsewhere. As scientific knowledge expands, however, the 21st-century medical establishment increasingly accommodates spiritual and religious beliefs. In fact, 60 of the 126 medical schools in the United States now include spirituality training to teach doctors how to tap the healing power of belief. Members of the conventional, scientific medical community have even begun to work in partnership with holistic practitioners.

The Middle Ages and Medicine

One thousand years ago, in the Christian countries of Europe, the so-called Dark Ages had given way to the

BY DANIEL ZYDOWICZ, M.D.

Middle Ages. The Dark Ages spanned the three centuries after the fall of Rome in A.D. 473; the Middle Ages lasted until approximately the invention of the printing press in A.D. 1453. The Christian belief that disease was a punishment brought down on sinful humans had displaced the Hippocratic notion that illness and disease were rational phenomena to be studied. Medical knowledge as represented by manuscripts in libraries and museums had largely been destroyed, scattered, or lost.

Since disease implied sin, supernatural events, and demonic possession, the "professional" medical person of the last millennium was often a member of a religious order, and treatment frequently consisted of prayers, laying on of hands, exorcisms, penance, or exhibition of holy relics. Christian monasteries were the vehicle for disseminating written scientific and medical information throughout Europe and the Middle East. Insofar as teaching and curing the sick contributed to the greater glory of God, the clergy often substituted for medical professionals.

During the Middle Ages, rational study based on anatomic observation or deductive reasoning was discouraged for religious reasons. As a result, medicine reflected a hodgepodge of Galen's teachings, alchemy from the world of Islam, incantations, and ancient superstitions. Its practitioners, some legitimate and others questionable, represented occupations that were similarly jumbled: rat catchers, bath keepers, sow gelders, tooth drawers, tailors, vagrants, shepherds, cobblers, mountebanks, hangmen, minstrels, poachers, barbers, nurses, sorcerers, drug peddlers, cataract prickers, and proctors of spittle houses.¹ Evidence-based medicine, quality improvement initiatives, and accountability were rare.

While medicine in the Christian world was dominated by the Church, in the Islamic countries of Europe and the Middle East it was controlled by lay physicians. Those countries had medical schools with employed physicians and teachers who carried on the Hippocratic tradition of ancient Greece. Medical knowledge was brought to the Muslim world by Syrian Christians (Nestorians), who had been driven from the Christian world because of religious conflict. Many of these outcasts settled in Asia Minor, particularly in areas now geographically associated with Iran and Iraq, and a large medical center evolved in Jundi-Shapur. The Syrian Christians served as a link between the Greek and Arab medical traditions, translating manuscripts from Greek into Syriac and then into Arabic. In contrast to leaders in the Christian

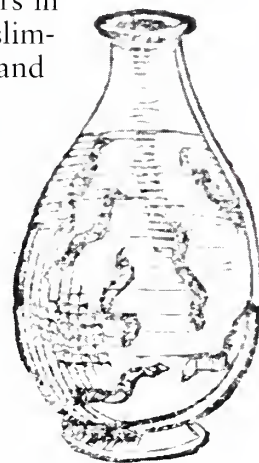
world, Islamic caliphs valued the traditions and manuscripts of the ancients and established more rational medical concepts. But eventually—and ironically—Arabic medical manuscripts were translated back into Latin as the works of Hippocrates, Galen, Euclid, Archimedes, and Ptolemy regained favor in European Christian countries.

Early Hospitals

The Muslim hospital, or Maristan, of the 7th to 11th centuries was a carryover from the earlier Jundi-Shapur hospitals in the Middle East. Large teaching hospitals were organized in what is now Baghdad and attracted a diversity of students. Wealthy patrons supported lecturing and teaching by specialists such as physiologists, oculists, surgeons, and bone-setters. In these early hospitals, charts were kept and diets, medications, and other treatments were prescribed. Bedside examinations, using patients to instruct medical students and regular visits by chief physicians also were part of this hospital model. The Maristan presaged modern hospital administration, the concept of inpatient and outpatient areas, separate wards for different diseases, and the hospital pharmacy.²

As medieval Europe emerged from the Dark Ages, monasteries developed more organized approaches to teaching and established schools or universities. Although this development was promoted by Charlemagne, King Alfred, and King Theodoric, the great European universities did not appear until after A.D. 1100. At the turn of the first millennium, the most enlightened medical centers in Europe were associated with Muslim-controlled areas in Spain (Cordova) and Italy (Salerno).

After nearly 700 years of official disapproval by the Church and ruling nobility, the study of human anatomy gradually gained acceptance. A book about hygiene, "Regimen Sanitatis Salernitatum," became a standard text for medical students, lasting through 300 editions. Hippocratic tracts dating back to about A.D. 300 provided the philosophic basis for the remnants of rational medical practice that endured in the Middle Ages.¹



Galen and the Four Humors

Galen (A.D. 130–201), a Greek physician whose concepts survived to the end of the first millennium, theorized that active constituents of the human body consisted of fluids with complex properties. The fluids, or humors (blood, yellow bile, black bile, and phlegm), were abstract substances never seen in pure form but clearly associated with visible body products. In a healthy person, the humors were in balance with one another; disease or illness resulted from an imbalance. The causes of imbalance ranged from dietary irregularities to excesses or deficiencies in exercise, intercourse, and sleep. Other factors included emotions, wounds or trauma, changes in environment, weather, and aging. Corruption, stagnation, and plethora were commonly recognized disease processes.

The physician's role was to assess the patient and assist nature in restoring humoral balance appropriate to that person's constitution. A successful caregiver at that time was expected to provide favorable and tangible results to the patient's family and friends. Purges, vomits, diuretics, and sudorifics were the staples of the doctor's armamentarium and supposedly restored disordered humors and initiated the body's natural response to illness. Not everyone could afford medical care, however. The few patients who could were given therapeutic diets, exercise programs, and counsel about dangerous emotions. They also received drugs, salves, and underwent medical interventions such as bloodletting.³

Bloodletting Techniques

Therapeutic bloodletting in the Middle Ages took various forms, depending on the patient's ailment. For example, slow bleeding with leeches was often used to treat headaches or bruises. Scarification and cupping, which involved numerous crisscrossing shallow cuts to allow blood to ooze out, were performed on large swellings. Afterward, a candle or piece of burning lint was placed in a cup that was then inverted and applied to the scarified area. Phlebotomy was also widely practiced.

Besides slight nausea, bloodletting had perceptible results in the patient, such as dizziness, lassitude, and calmness. The patient felt relieved of corrupted humors, thickened blood, and other tainted substances. Physicians who refused to order bloodletting when a patient or family expected it could have been seen as failing to help the sick person.⁴

Our Not-So-Modern Art

At the end of the first millennium, science and technology as we understand them today were primitive to nonexistent. The printing press was 450 years in the future. The scientific and industrial revolutions were

beyond the realm of imagination. But 50 generations of humanity later, on the eve of the year 2000, the medical consumer is as vulnerable to misinformation, deceit, and charlatanry as at the end of the first century A.D. The medium has changed, however. According to *New York Times* health and medical writer Jane E. Brody, this year more than 25 million Americans are expected to turn to the Internet for answers to health questions, answers that may be biased, inaccurate, and sometimes even dangerous.⁵ And so we conduct our ancient-modern art bravely on into the third millennium.

MM

Daniel Zydowicz is an infectious disease specialist with InterMed Consultants in Edina, Minnesota.

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ANNOUNCEMENTS



AMA Will Hold Leadership Conference

The AMA National Leadership Development Conference is March 25–28, 2000, in Miami Beach, Florida. For more information, access the AMA Web site at www.ama-assn.org/about/roadshow/index.htm, or call Rose Wietrzykowski at 312/464-4325.

AMPAC Announces Workshops

The AMPAC Campaign School, a bipartisan, intensive political campaign training program taught by leading U.S. political consultants, will be held February 9–13 and March 17–19, 2000 in Arlington, Va. Enrollment is open to AMA members, spouses, and medical society staff. The Campaign School is designed for members of the medical community who are considering a run for political office or who have filed to run for office. For more information, call 202/789-7472, or e-mail jillpoznick@ama-assn.org.

HCFA Agrees to Review Proposed Medicare Pre-Op Policy

Thanks to the leadership of Hennepin Faculty Associates physicians Lois Heaney, M.D., and Andrew Schmidt, M.D., who is president of the Minnesota Orthopaedic Society, and to the involvement of U.S. Rep. Bill Luther, the Health Care Financing Administration (HCFA) has agreed to review a controversial proposed policy of United Health-Care-Medicare, Minnesota's Part B

Medicare carrier. In September, United announced its intention to deny all services associated with pre-operative

examination codes V72.81–V72.84.

The carrier proposed the policy change on the grounds that Medicare does not cover routine physical check-

ups, noting that the pre-op history and physical examination are the responsibility of the surgeon and, when provided the day before or the day of surgery, are included in the surgeon's global fee.

Concerned about the effect of the proposed

change, Heaney and Schmidt arranged through Luther to meet with high-
HCFA continued on page 35

“We are grateful to Drs. Heaney and Schmidt and to Rep. Luther for arranging the meeting with HCFA. Without their leadership, this issue would not have received timely national attention.”

Janet Silversmith, MMA director of health economics and policy analysis

Attorney General Hatch Announces Medicare Lawsuit

On November 17, Minnesota Attorney General Mike Hatch announced he had filed a lawsuit against the United States government and Donna Shalala, secretary of the Department of Health and Human Services, on behalf of the Minnesota Senior Federation Metropolitan Region, the state of Minnesota, and private citizen Mary Sarno.

“This lawsuit is aimed at bringing equality back into Medicare,” said Hatch. The action seeks no money, but asks for an injunction against violation of constitutional rights and calls attention to disparities in federal health care reimbursement that punish physicians and seniors in Minnesota and other states where care

is delivered efficiently. The lawsuit strategy was developed by the Medicare Justice Coalition (MJC), a grassroots organization spearheaded by the Minnesota Seniors Federation. The Minnesota Medical Association and the Hennepin and Ramsey Medical societies are on an advisory committee of the coalition.

The MMA has been a strong advocate for Medicare funding reform. In 1989, it formed the Geographic Coalition, a nonpartisan group of 24 state medical associations that worked to reduce the funding disparities. In November 1999, based on the similarity of the two groups' objectives, the MMA joined forces with the MJC, lending its support for the lawsuit.

VIEWPOINT

Paul C. Matson, M.D.

Chair, MMA Board of Trustees



Recently, vigorous advocacy on Medicare issues has met with success.

Pre-Operative Services

We are grateful that through the direct efforts of Hennepin Faculty Associates (HFA), the Health Care Financing Administration has agreed to review United HealthCare-Medicare's proposed policy to deny all services associated with pre-operative examination codes.

Representing HFA, Lois Heaney, M.D., Andrew Schmidt, M.D., who is also president of the Minnesota Orthopaedic Society, and Sylvia Luck, HFA director of professional fee analysis, with the assistance of U.S. Rep. Bill Luther, arranged a meeting at the Health Care Financing Administration's Washington, D.C., office. Janet Silversmith, MMA director of health economics and policy analysis, participated in the meeting via conference call as they expressed concerns about how the proposed policy would affect patients. HCFA promised to review the policy at a national level. As a result, United HealthCare-Medicare has suspended the policy indefinitely, pending national direction. This is a signifi-

cant victory for Minnesota physicians and their patients. We thank all those involved, particularly Drs. Heaney and Schmidt and U.S. Rep. Bill Luther. The MMA welcomes the opportunity to be involved with all groups in their efforts to work for policies that benefit patient care.

Geographic Disparities

Trying to correct the glaring inequities in Medicare reimbursement has been a top priority for many years. As former U.S. senator David Durenberger said at the North Central Conference meeting in November, "Minnesota physicians are underpaid for practicing medicine the right way. No good deed goes unpunished in our current system."

In 1989, the MMA formed the Geographic Coalition of 24 "have-not" states that, like Minnesota, are on the low end of the reimbursement scale. Our joint efforts helped reduce the disparities in fee-for-service Medicare reimbursement, but the differences among states' Medicare managed care benefits continue to be dramatic.

In Florida, Medicare beneficiaries receive lavish benefits that may include free prescription drugs, no premium, no copays, transportation to the clinic, and even membership in a health club. In Minnesota, Medicare beneficiaries receive no extras and some, like Mary Sarno, have to

pay up to \$1,000 per month in premiums plus copays.

The good news is that the number of our allies took a leap forward when the state of Minnesota, the Minnesota Senior Federation, and Mary Sarno, a private citizen, filed a lawsuit against the federal government for unfair treatment of seniors. This innovative strategy was developed by the Medicare Justice Coalition, a grassroots senior group spearheaded by the Minnesota Senior Federation. The MMA and Hennepin and Ramsey Medical Societies serve on an advisory committee of the coalition and strongly support the lawsuit.

Resolving the lawsuit, which has been called a long shot, could take as long as two years. The goal is for the court to direct Congress to correct the unfair reimbursement system. The chorus at the news conference sounded familiar: It's not fair. It's outrageous. It must be changed. But this time, seniors were joining in our refrain. We welcome allies in our efforts to achieve fair Medicare policies. ■

This is my final column as chair of the Minnesota Medical Association. In January, I will assume a new role as alternate delegate to the AMA House of Delegates. I appreciate the opportunities that have been given me and look forward to continuing to serve our MMA.

HCFA from page 33

ranking HCFA officials in Washington, D.C., on November 17. Janet Silversmith, MMA director of health economics and policy analysis, was included in the meeting through a conference call, and together, they expressed concerns that the policy change would affect the quality of medical care in Minnesota, where the general standard of care consists of a pre-operative exam provided by the patient's primary care physician.

During the meeting, HCFA representatives indicated that they are concerned about several aspects of the proposed policy. It appears to them to be an attempt by the carrier to address a difficult problem—

perhaps routine level 5 E&M coding or the use of the "V" codes.

As a result of HCFA's interest in reviewing the proposed policy, United HealthCare-Medicare announced on November 18 that it would suspend the policy indefinitely and wait for national direction.

"We are grateful to Drs. Heaney and Schmidt and to Rep. Luther for arranging the meeting with HCFA," said Janet Silversmith. "Without their leadership, this issue would not have received timely national attention from the national HCFA office."

The MMA will continue to work with United HealthCare-Medicare to address physicians' concerns. ■

MMA Shows Support for Researchers

The MMA sent a letter of support to the University of Minnesota following accounts of animal researchers receiving booby-trapped letters. In addition, the name of a University of Minnesota researcher, Marilyn Carroll, Ph.D., appeared in a terrorist group's Internet declaration.

The University carefully follows all federal guidelines regulating use of animals in biomedical research and has policies to ensure the humane use of animals in research. ■

MMA Seeks Mentors for Minority Youth

The Minnesota Medical Association Minority Affairs Committee is seeking metropolitan-area physicians to participate in a pilot project to mentor minority sixth-graders. Mentors will encourage these students to achieve the academic success in junior and senior high school that will qualify them to enter college and medical school. Potential mentors will be interviewed before participating in the program. Mentors will be asked to:

- Attend a three-and-a-half hour

mentor training program.

- Participate in the entire nine-month program during the school year.
- Meet with the student at least one hour per week at his or her school.
- Meet a minimum of two times with other program mentors during the school year.

This is an opportunity for physicians to help minority students envision a career in medicine and to encourage them to achieve this goal. The committee also wants to know

if physicians are interested in participating in other activities that will encourage minority students to pursue the medical profession.

If you are interested in helping minority youth, return this form to Wendy O'Donnell, Minnesota Medical Association, 3433 Broadway St. NE, Suite 300, Minneapolis, MN 55413.

For more information, call Wendy O'Donnell, 612/362-3745 or 800/DIAL MMA 800/342-5662, or e-mail wodonnell@mnmed.org ■

____ Yes, I will participate in the MMA Minority Mentoring Program. I understand that I will be expected to meet with the student one hour per week at his or her school.

____ I am unable to participate in the mentoring program, but I would be interested in participating in other MMA programs to assist minority students (health fairs, speaking engagements, science project fairs, etc.).

NAME: _____

ADDRESS: _____

PHONE: _____

E-MAIL: _____

Minnesota Delegates Will Propose Eight Resolutions at AMA Interim Meeting

As *Minnesota Medicine* goes to press, the Minnesota delegation to the American Medical Association (AMA) will be attending the 1999 AMA Interim Meeting in San Diego, December 5–8. The delegation, chaired by A. Stuart Hanson, M.D., will propose eight resolutions addressing critical issues in national health care policy.

Health Care Standards in U.S. Correctional Facilities

A resolution calling on the AMA to research, evaluate, and make recommendations for revising standards of health care in correctional settings. It further calls on the AMA to advocate for improving the health care delivered in correctional settings to a level consistent with prevailing community standards.

Ethnic Data Reporting for Clinical Trials

A resolution calling on the AMA to study racial and ethnic categories included in the Federal Office of Management and Budget Directive 15 to determine if expanding these classifications would be appropriate.

Medicare Pre-Operative History and Physical Examinations

A resolution calling on the AMA to introduce and aggressively pursue changes to the Social Security Act that would specifically authorize Medicare coverage for pre-operative examinations.

Sleepy Driving

A resolution calling on the AMA to define sleepiness behind the wheel as a major public health issue

through a nationwide educational campaign and to encourage all state medical associations to promote the inclusion of information about it in drivers education classes.

Domestic Violence Prevention Information and Movie Theaters

A resolution calling on the AMA to study the Baltimore County Medical Association's experience with using movie theaters to promote its domestic violence awareness and referral initiative and, if appropriate, to facilitate implementation of similar programs by other county and state medical associations.

FDA Regulation of Dietary Supplements and Herbal Remedies

A resolution calling on the AMA to work with Congress to pass federal legislation to implement the regulation of dietary supplements and herbal remedies by the Food and Drug Administration (FDA).

Public Health Impact of Railroads

A resolution calling on the AMA to study the impact of railroad traffic as it pertains to emergency access to hospitals and emergency evacuations in the event of hazardous material contamination.

Pharmaceutical Costs

A resolution calling on the AMA to participate in the development of a national task force to address the problem of increasing pharmaceutical costs.

It further calls on the AMA to develop information and mechanisms to assist physicians in controlling pharmaceutical costs. ■

Dr. Peterson Testifies on Medical Records Privacy

Minnesota Medical Association Treasurer Noel Peterson, M.D., testified on November 8 in Rochester before the Judiciary Subcommittee on Data Privacy and Information Policy. Peterson, a urologist at the Olmsted Medical Center in Rochester, told lawmakers that growing public uneasiness about large electronic databases and protection of medical records present crucial issues for physicians and other health care providers.

"Confidentiality of communication between a patient and his or her physician is a cornerstone of good medical care," said

Peterson. "Without that trust, patients may not disclose the necessary information for a proper diagnosis and treatment.

"Within the many uses of medical records today, there are uses of health information that are legitimate and uses that are questionable," said Peterson.

He asked the subcommittee to strike a reasonable balance between patients' right to privacy and promotion of scientific research for the greater public good.

For more information, see the January 2000 issue of *The Physician Advocate*. ■

NEWS DIGEST

*People and places
making medical news*



People & Places

Marc Manley, M.D., joined Blue Cross and Blue Shield of Minnesota as executive director for Blue Cross's **Center for Tobacco Reduction & Health Improvement**. He is nationally renowned for directing the **American Stop Smoking Intervention Study**, or ASSIST, a multistate demonstration project to reduce tobacco use. Previously, he worked as a researcher at the **National Cancer Institute** for 12 years.

The **University of Minnesota's Department of Family Practice** received the **American Academy of Family Physicians' 1999 Gold Achievement Award** for outstanding effort in the education of family physicians. **William Jacott, M.D.**, department head, received the **F. Marian Bishop Leadership Award** for contributions to family practice education and leadership of the **American Medical Association** and the **Joint Commission on the Accreditation of Healthcare Organizations**.

Gerald Hill, M.D., received the **1999 American Indian Physician of the Year Award** from the **Association of American Indian Physicians**. The award is given to a physician of American Indian descent in recognition of outstanding achievements in the field of medicine and health service to the American Indian/Alaska Native population. Hill was recently appointed associate dean of the

School of Medicine at the University of Minnesota-Duluth.

John Besser, head of the microbiology lab at the **Minnesota Department of Health**, recently participated in ceremonies to honor the **Centers for Disease Control and Prevention (CDC)** for developing **PulseNet**, a national system that uses DNA "fingerprinting" and computer-based surveillance to track foodborne disease. The CDC received a **Ford Foundation Innovations in American Government Award** for its work on **PulseNet**.

Using **PulseNet**, state and federal health officials last year were able to identify the Minnesota cases of *shigella* as part of a multistate outbreak of the illness, caused by contaminated parsley from Mexico.

The **Minnesota Department of Health (MDH)**, in collaboration with the **University of Minnesota School of Public Health**, was awarded one of three cooperative agreements by the CDC to develop a **Center for Excellence in Health Statistics**. The grant covers two MDH priorities: tobacco prevention and cessation, and health disparities among populations of color relative to Minnesota's white population.

Patricia A. Riley was appointed president and CEO of Bloomington-based **Stratis Health**. Most recently, Riley was vice president of

government programs for the **Health Plans Division of Allina Health System**, where she had profit and loss responsibility for \$450 million in annual revenue and membership of 150,000 enrollees.

The **HealthPartners Medical Group of HealthPartners**, based in Bloomington, was recognized for its quality diabetes care by the **American Diabetes Association** and the **National Committee for Quality Assurance**, sponsors of the **Provider Recognition Program**. The program aims to improve the quality of care for patients with diabetes by setting standards of care, recognizing physicians whose care meets those standards, and motivating physicians to document and improve their delivery of care. The three-year recognition became effective on September 10, 1999.

David D. Gregg, M.D., was promoted to vice president and medical officer of health initiatives for **HealthPartners**. He joined the organization in 1995 as vice president and associate medical director of its **Worksite Health** program and will be responsible for the integration and promotion of **Worksite Health** and member health initiatives.

Consulting Radiologists Ltd. opened the **Edina Imaging Center**



in October to offer the latest in high-speed CT scanning and C-Arm imaging. Edina Imaging Center physicians are Marshall Golden, M.D.; John Steely, M.D.; William Ford, M.D.; Subbarao Inampudi, M.D.; and Mark Myers, M.D.

Robert Miller, M.D., of Mankato, recently received a three-year appointment as Cancer Liaison Physician for the Hospital Cancer Program at Immanuel-St. Joseph's MayoHealth System. The Cancer Liaison Program is an integral part of the Commission on Cancer of the American College of Surgeons. The commission, which has ap-

proved more than 1,480 cancer programs nationwide, reviews each institution's cancer program for conformity to established standards.

J. Randolph Beahrs, M.D., a physician with Metropolitan Urologic Specialists, P.A., became president of the North Central Section of the American Urologic Association (AUA) in September. The North Central Section is the second-largest section of the AUA, with 1,660 members from Minnesota and eight surrounding states.

Paul Terry, Ph.D., vice president of Health Education for the

Institute for Research and Education HealthSystem Minnesota, accepted a one-year appointment as a Senior Fulbright Scholar to Zimbabwe, Africa, beginning in January 2000. Terry will divide his time between teaching public health education courses at the University of Zimbabwe and researching HIV risk assessment standards and related prevention practices.

Terry is the founder and chair of an annual national conference, "The Park Nicollet Health Conference," and has authored more than 50 publications and products for health professionals and consumers. ■



Socioeconomics

Health Department Receives \$258,000 Grant to Cut Infant Mortality in Minorities

The Minnesota Department of Health received a \$258,000 grant from the Centers for Disease Control and Prevention (CDC) to reduce infant mortality in African American and American Indian families in Hennepin and Ramsey counties. The grant will fund a one-year community-based planning process for eliminating disparities in infant mortality in the two groups. African American and American Indian infants die at about three times the rate of white infants in the metro area.

The Minnesota grant comes from \$9.4 million in federal funds being awarded to 18 community coalitions by the CDC. The awards

are part of the CDC's new initiative, "Racial and Ethnic Approaches to Community Health (REACH 2010)," a demonstration project that targets infant mortality, breast and cervical cancer screening and management, cardiovascular diseases, diabetes, immunizations, and HIV/AIDS.

Diabetes Costs State Nearly \$2 Billion per Year

The Minnesota Department of Health's (MDH) annual update on diabetes reported that almost 209,000 Minnesotans have diabetes, though 73,000 of them are unaware they have the disease. Nationally, 16 million people have diabetes. The cost of properly managing the chronic disease is estimated at \$4,500 per person per year.

The MDH runs a comprehensive Diabetes Control Program in conjunction with the Centers for Disease Control and Prevention. The

program focuses on preventing disabilities from complications associated with the disease.

Fredrikson & Byron Starts Health Care Consulting Group

The Minneapolis-based law firm Fredrikson & Byron, P.A., has launched Fredrikson Healthcare Consulting Ltd., a group of health care consultants who will assist hospitals, physician groups, and other health care organizations with business management issues, including the billing regulations administered by private and government-funded health care plans. In addition, the group will offer expertise in billing, coding, documentation, and staff education about effective methods of monitoring health care reimbursement procedures. Randall M. Thompson, formerly of Towers Perrin Health Industry Consulting in Minneapolis, was named president of the subsidiary. ■

Rates, Trends & Data



State Uninsured Rate Holds Steady

According to a University of Minnesota study, about 5 percent of Minnesotans reported being without health insurance in 1999, down slightly from results of surveys in 1990 and 1995. The national rate exceeds 16 percent and is climbing.

Kathleen Thiede Call, Ph.D., assistant professor in the School of Public Health, led the Minnesota Health Access Survey, which monitors the progress of state health care reforms. Call speculated that the state's success in reducing the number of long-term uninsured may be due to Minnesota's robust economy and MinnesotaCare subsidies.

Drunk Bar Patrons Still Get Served

In a study of ways to prevent further sales of alcoholic beverages to obviously drunk patrons, University of Minnesota researchers found that most establishments continued to sell alcoholic beverages despite obvious signs of intoxication in the customer. In a sample of 336 bars, restaurants, liquor stores, and grocery stores, 79 percent sold alcohol to customers who acted severely intoxicated.

"What this tells us is that there is an urgent need for additional enforcement of laws prohibiting sales to intoxicated patrons and fail-safe ways for servers to deny service," said Alexander Wagenaar, Ph.D., professor of public health and principal investigator of the study.

Minnesota Remains Healthiest State in the Nation

For the fourth consecutive year—and the seventh time in 10 years—Minnesota was ranked the healthiest state in the country. The report, which was prepared by UnitedHealth Group, ranks the health of all 50 states on several criteria, including lifestyle, access to health care, occupational safety and disability, disease, and mortality. Minnesota's top rating is due to its low premature death rates, low unemployment, low risk for heart disease, high rate of high school graduation, and high rates of health insurance coverage. On the downside, the report noted that adequacy of prenatal care has improved over the past decade, but not as fast as the national average.

For more information about the annual state health ranking, log on

to the UnitedHealth Group Web site, www.unitedhealthgroup.com.

Minnesota Earns Top Rank in Health Care Quality

Changes in several health indicators bumped Minnesota up into the top spot nationally in health care quality in an index compiled by Minneapolis-based Health Risk Management Inc. Hawaii ranked No. 2 and Wisconsin, No. 3. Tied for the lowest rank were Mississippi and Louisiana.

Last year Minnesota ranked second. The changes included a lower infant mortality rate, shorter average length of hospital stay, fewer alcohol-related traffic deaths, and a reduction in the percentage of the population without health insurance. The number of college graduates and the percentage of women receiving Pap smears increased. ■



Research & Innovations

'U' Study: Breastfeeding May Prevent Childhood Leukemia

According to a University of Minnesota Cancer Center study published in the *Journal of the National Cancer Institute*, breastfed babies are less likely to contract childhood acute leukemia than bottle-fed babies. The risk of leukemia was 21 percent lower for babies whose mothers re-

ported breastfeeding for at least one month and 30 percent lower for those breastfed longer than six months. Les Robison, M.D., professor of pediatrics, was the study's principal investigator, and Joseph Neglia, M.D., associate professor of pediatric hematology and oncology, was a co-investigator. Both are members of the university's Cancer Center. The study was the first to find a statistically significant link between breastfeeding and prevention of leukemia, the most common childhood cancer, afflicting 2,500 American children each year. ➡

'U' Cancer Center Launches New Breast Cancer Study

Jeffrey Miller, M.D., and Tanya Repka, M.D., at the University of Minnesota Cancer Center, are investigating a combination of Pro-leukin™ and Herceptin™, drugs that together could enable the body's immune system to target and kill breast cancer cells. During the seven-week trial, the drugs would replace the chemotherapy and Herceptin combination that is currently the standard treatment for metastatic or advanced breast cancer.

To learn more about the study, call Juliet Gay, breast cancer studies nurse clinician, at 612/625-2956.

More Migraine Sufferers Seek Relief

In a review of medical records of 1,342 patients in Olmsted County

who were diagnosed with migraines during the 1980s, Mayo Clinic researchers found an increase of 56 percent for women and 34 percent for men. Jerry Swanson, M.D., a Mayo Clinic neurologist and an author of the study, which was published in the October 22 *Neurology* journal, blames the increases on stress.

'U' Gets \$9 Million to Study Smoking Cessation

A \$9 million federal grant was awarded by the National Cancer Institute and the National Institute of Drug Abuse to University of Minnesota researchers to study cigarette smokers who have not been able to break the habit. Principal investigator Dorothy Hatsukami, Ph.D., will focus on whether those who can't quit can at least cut down, whether

smoking fewer cigarettes will lower their health risk, and whether reduction can culminate in abstinence.

Mice May Reveal Genetic Secrets of Neural Tube Defect

A strain of Crooked tail (Cd) mice bred by University of Minnesota researchers may help expose the genetic secrets of neural tube defect (NTD), a leading cause of infant mortality. The mice closely resemble humans in the appearance of NTD as well as in their response to folic acid, which is known to reduce the incidence of NTD. The research, which was directed by university neurologist Elizabeth Ross, M.D., appeared in the November issue of *Human Molecular Genetics*. ■

Information compiled from the St. Paul Pioneer Press, the Minneapolis Star Tribune, the Associated Press, and news releases.

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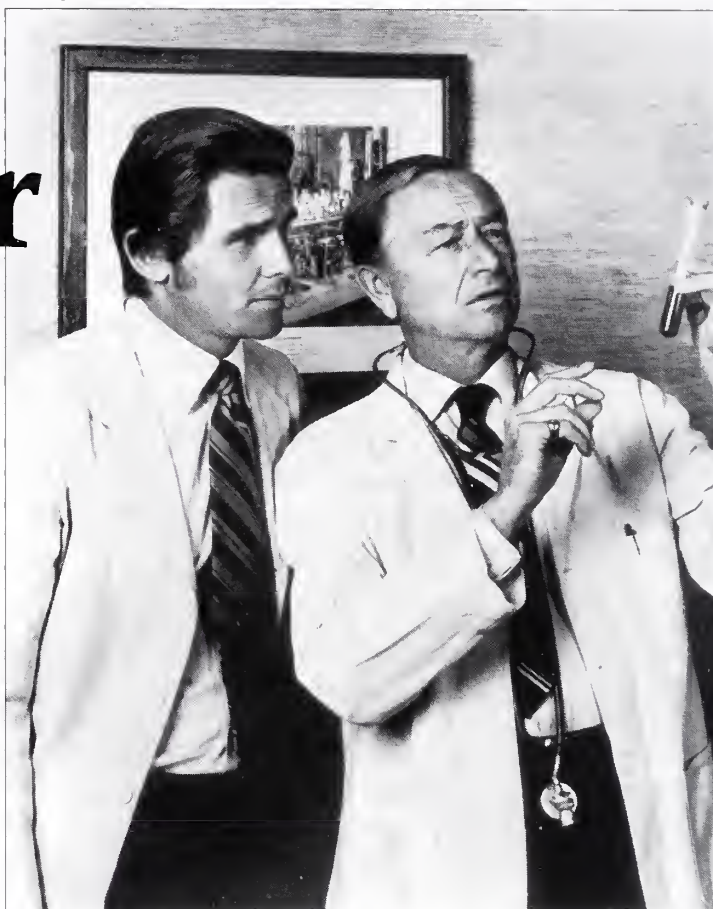
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The Portrait of a Doctor

A look at how doctors have been portrayed in this century's popular culture.

By Jon Hallberg, M.D.



CORBIS/BETTMANN

Several months ago, I saw Stanley Kubrick's final film, "Eyes Wide Shut." By the time I purchased my ticket that night, I was well aware that the film had received mixed reviews, at best. But I was curious about how one of cinema's greatest directors would portray a doctor on film.

The film is the story of Bill, a New York physician played by Tom Cruise. Bill seemingly has everything. He is wealthy, charming, handsome, and well connected. He has a beautiful wife, a beautiful daughter, and a beautiful apartment. But he has serious flaws. He is shallow, cocky, scheming, and opportunistic. What bothered me most about this character, however, was his sense of superiority. Throughout the film, he alerts others to his status as a doctor, often flashing his New York State Medical License like a

badge, gaining entry to places inaccessible to others. (*Entertainment Weekly* even ran a sidebar about whether this could really happen. The magazine quoted a medical expert who assured readers that it could not.) After seeing this dark, simultaneously attractive and repulsive film, I wondered what the public makes of such a portrait of a doctor.

Physicians have been a favorite subject in art and popular culture for decades. How are patients' perceptions of us affected by the way the profession is portrayed on TV, in print, and in the movies? What have been the major influences over the years? What kinds of images characterize a doctor as good? It's clear that these portrayals make some impression. Patients often tell me that their ER experience was nothing like "ER." One of my colleagues is described

as a Marcus Welby type. Then there's the nurse who, eight years after we first met, still calls me Doogie Howser.

What follows is my way of answering these questions. I've chosen what I consider the 10 greatest influences on the public's perception of physicians in the last 100 years. (I love lists. It was inevitable that at the dawn of a new millennium, I would come up with one.) I picked just one influence from each of the last 10 decades. I believe these selections have profoundly affected who physicians are expected to be and what we are expected to do.

☞ 1900–1910 ☜

The Flexner Report: The Foundation

A report on the state of medical education in the early 20th century would hardly seem the stuff of pop culture, but its importance cannot be ignored. In 1909, U.S. educator Abraham Flexner surveyed medical schools throughout the United States and Canada for the Carnegie Foundation for the Advancement of Teaching. His report concluded that the best form of medical education was like that found at Johns Hopkins University (and the University of Minnesota, which he visited in the spring of 1909), where students received a firm grounding in the basic sciences as well as the clinical sciences. Faculty should be employed specifically to conduct research and to teach, Flexner wrote; a teaching hospital should be the working laboratory where the two efforts come to fruition. Flexner's recommendations revolutionized physician education and created the medical school system as we know it today. A certain mystique surrounds medical schools, and people continue to be fascinated by them. That the University of Minnesota's first "Mini Medical School," a series of lectures offered free to the public, filled up in a matter of hours this fall is a testament to the lasting impact of Flexner's report.

☞ 1910–1920 ☜

'The Doctor's Dilemma': Science vs. Art

George Barnard Shaw hated doctors. At least that's the initial impression he gives in his influential play, "The Doctor's Dilemma," published in 1913. Though the play itself was immensely popular, it was Shaw's extended preamble, the "Preface on Doctors," that carried the intellectual and emotional weight of this work. In the 80-page preface, Shaw condemns the medical profession for its overreliance on the "new" science and praises the "old" art of medicine. For many readers, Shaw's arguments still resonate. And 86 years later, it seems that the medical establishment is listening, by putting more emphasis on patient satis-

faction, ethics, and complementary medicine.

☞ 1920–1930 ☜

'Arrowsmith': The Pull of Passions

Sinclair Lewis was born in Sauk Centre, Minnesota, in 1885. He was intimately connected to the practice of medicine—his father, brother, grandfather, and uncle were all physicians. Not surprisingly, doctors played a prominent role in two of his most famous novels, "Main Street" and "Arrowsmith." Lewis attained fame in 1920 after the publication of "Main Street," in which he satirized life in his hometown, fictionalized as Gopher Prairie. That book explored the frustrations of small-town life through the eyes of Carol Kennicott, a doctor's wife.

After completing his next novel, "Babbitt," in 1921, Lewis began to search for a heroic character to drive his next work. He found one through a chance meeting with Paul de Kruif, a young bacteriologist from Chicago. De Kruif persuaded Lewis to write about exciting new advances in medical science, and the result was the story of Martin Arrowsmith, M.D. Arrowsmith is one of fiction's first doctor-heroes, a dedicated, driven physician who practiced in a small town but whose passion led him to the West Indies to fight plague. But his passion also took him away from happiness. His struggle embodies something many of us grapple with: the desire to help individuals while looking out for the needs of society as a whole. The book inspired a generation of young doctors and was the subject of one of the first talking motion pictures, made in 1931 and starring Ronald Colman and Helen Hayes.

Sinclair Lewis received the Pulitzer Prize in 1926 for "Arrowsmith," but he refused it. In 1930, he won the Nobel Prize for literature. De Kruif became famous in his own right with the publication of his book "Microbe Hunters" in 1926.

☞ 1930–1940 ☜

Albert Schweitzer: Humanitarian

In 1913, a young medical professor left his post at the University of Strasbourg, his literary work, and his organ playing to practice medicine in French Equatorial Africa (present-day Gabon). Moved by reports of physical misery and the pull of a strong faith, Albert Schweitzer gave up the comforts of European life and embarked on a lifelong mission to help the less fortunate. His work came to public attention in 1931 with the publication of "On the Edge of the Primeval Forest." In this book, Schweitzer described how he and his wife, a nurse, built a clinic and hospital in Africa and worked endlessly to treat sleeping sickness,



CORBIS/BETTMANN

Albert Schweitzer inspired the ideal of the doctor-humanitarian.

leprosy, and tropical ulcers. Schweitzer pioneered medical mission work long before it was trendy and brought the plight of native peoples to the world's attention.

In October this year, the France-based Médecins Sans Frontières (Doctors Without Borders) was awarded the Nobel Peace Prize for its aggressive work in war-torn and famine-stricken countries. Albert Schweitzer, the 1952 Nobel Peace Prize winner, laid the groundwork for such important efforts.

☞ 1940–1950 ☜

'The Country Doctor': Selfless Devotion

In the September 20, 1948, issue of *Life* magazine, W. Eugene Smith profiled the life of a country doctor in a stunning photo essay. The doctor's name was Ernest Ceriani and he practiced in Kremmling, Colorado, population 2,000. We know these photographs, for they are part of our collective memory. Dr. Ceriani, fedora properly in place, black bag in hand, on a house call while storm clouds billow in the background. Here, with a 2½-year-old girl with stitches across her forehead, dabbing her eye, stunned. And here, dressed in surgical scrubs, staring blankly,

coffee and cigarette in hand. The stark black and white images render the accompanying headings and text almost superfluous—"His Endless Work Has Its Own Rewards"; "Community Absorbs Most of His Time." This issue was one of the most popular that *Life* ever published and confirmed for many people the level of dedication required of a physician.

☞ 1950–1960 ☜

'Doctor Zhivago': Physician-Poet

In 1957, a novel written in secret by the Russian author Boris Pasternak was smuggled out of the Soviet Union and into the United States by way of Italy. In a sense, the novel's odyssey to these shores reflected the journey of its protagonist, Yurii Andreivich Zhivago—Doctor Zhivago. Zhivago (whose name means "life") witnesses the collapse of imperial Russia and a nation torn apart. Over the course of decades and thousands of miles, he experiences wars, famine, and disease. He has nothing, then everything—then loses it all, including his family and the women he loves. He dies alone, unknown. Zhivago is both physician and poet, tending to the physical and spiritual wounds of Mother Russia. Zhivago, perhaps more than any other fictional doctor, brought to the public's attention the duality of the physician as scientist and humanist. Zhivago embodies the idea attributed to Sir William Osler that medicine is the most humanistic of the sciences and the most scientific of the humanities.

The character Zhivago has much in common with a real Russian man of letters, Anton Chekhov, and Pasternak may have been inspired by him. Though Chekhov is best remembered for his short stories and plays, he was a physician first, a writer second. (He once wrote that medicine was his lawfully wedded wife and writing was his mistress.) His initial profession allowed him to witness firsthand the stuff of life—the pain and suffering, joy and exhilaration. The result was a body of work that captured the essence of the human experience and that has few equals.

Pasternak won the Nobel Prize for literature in 1958. Though "Doctor Zhivago" was well received and well read, it was David Lean's sweeping 1965 film that captivated the public. It starred Omar Sharif as Zhivago, Geraldine Chaplin as his wife, Tonia, and Julie Christie as his lover, Larisa Feodoronova Gromeko. She was known simply as Lara. Her balalaika theme plays in the minds of many, and thousands of girls born in the 1960s bear her name.

☞ 1960–1970 ☜

'Marcus Welby': Doctor Knows Best

By the 1960s, television had become the entertainment medium of choice. The doctor shows that have been popular for decades took root during this time.



PHOTOGRAPH BY W. EUGENE SMITH/LIFE MAGAZINE/TIME INC.©

One of the most enduring images of a physician is Life magazine's "The Country Doctor."

In the 1950s, there was "Medic." Then, in the early '60s, "Dr. Kildare" and "Ben Casey" appeared. But the show that best captures the doctor of this tumultuous decade didn't air until 1969. "Marcus Welby, M.D." starred Robert Young in the title role of a show that has been called the "father of 'ER.'" Young, who was 62 when the show premiered, came out of a seven-year retirement to create the role. He was best known as the kindly family man Jim Anderson on "Father Knows Best," and in many ways, Marcus Welby was not all that different. He practiced out of a home office in Santa Monica, California, and treated his patients with courtesy, respect, and dignity. He realized (and the show made obvious) that much of human suffering had a psychosocial component. In the show's first episode, the holistic Welby says, "We don't treat fingers or skins or skulls or bones or lungs. ...We treat people."

The show aired during the Vietnam War and

through the guise of the show, controversial issues could be addressed in noncontroversial ways. The show tackled such topics as LSD and other drug overdoses, homosexuality, abortion, and teen pregnancy. During the seven-year run of the show, Marcus Welby became synonymous with the kindly GP, the sort of elderly, distinguished, gentle doctor everyone wants but rarely finds.

☞ 1970–1980 ☜

'M*A*S*H': Fighting Bureaucracy and Death

The unlikely popularity of the 4077th Mobile Army Surgical Hospital began quietly as a novel, caught critical attention as a film, and became a pop culture phenomenon as a TV series. "M*A*S*H" aired on television from 1972 to 1983. Its final episode, entitled "Goodbye, Farewell, and Amen," literally stopped a nation in its tracks. On February 28, 1983,

some 125 million people watched the series end—the largest audience ever for a single television episode. The reason for its appeal may have to do with our universal abhorrence of war and the pointless loss of life.

When the series began, the Vietnam War was in full swing, and though “M*A*S*H” was set in Korea, the scenarios made obvious reference to Vietnam. The show was dubbed a “dramedy,” part drama, part comedy. The tone was decidedly irreverent, with a strong disdain for authority in general and regulations in particular. But the heart of the show was the surgeons’ and nurses’ dedication to one common purpose: saving lives. The doctors were flawed, but they were good, decent people who faced abnormal challenges and handled them the best they could.

1980–1990

‘St. Elsewhere’: The Problems Are Here

While this series had nowhere near the audience that “M*A*S*H” had, what it lacked in numbers it made up for in dedication. “St. Elsewhere” made for a new kind of television experience with its unusual camera angles, complex characters, and *cinéma vérité* style. Indeed, though the show was fiction, the stories had the look and feel of truth. “M*A*S*H” had a laugh track to break the tension when things got too serious. “St. Elsewhere” had no such props. It was set here in the United States, in a busy, gritty, inner-city hospital in Boston. The hourlong program blazed an important trail, addressing hot-button issues such as AIDS at a time when the epidemic was rapidly expanding. The show had women doctors and doctors of color. And it addressed health care economic issues just as they were beginning to enter the public debate. Toward the end of the show’s six-year run, St. Eligius Hospital is purchased by Ecumena Hospitals Corporation. In a showdown between the chief of staff and the chief of services, the former “moons” the latter and resigns on the spot, acting out physically what many of us have probably contemplated. These were doctors—warts and all—in a society with its veneer peeled away. And we cheered them on.

1990–2000

‘ER’: Medicine Is Hot and Cool

“ER” premiered in 1994, just as the Clintons were trying to tackle health care reform. Their effort met a rapid death, and for a time it seemed the public didn’t want to discuss anything health- or doctor-related. That all changed when people started tuning in to “ER.” Soon, words and phrases like “chem 7,” “CBC,” “stat,” “chest tube,” “LP,” and “tox screen” were heard in offices and schools. It didn’t matter that most



HOLLYWOOD BOOK AND POSTER

Fast-paced “ER” suits the short attention span of today’s viewers.

viewers had no idea what these things were used for (nor did the actors, for that matter). The hottest, most daring show on TV was about doctors.

The show’s creator is Michael Crichton, a Harvard Medical School graduate and the author of such works as “The Andromeda Strain” (which he wrote while he was a med student) and “Jurassic Park.” Crichton based some of the show’s early material on his experiences at Mass General.

“ER” reflects the MTVization of virtually everything in our culture. The show is frenetic and perfectly in keeping with our society’s short attention span. (The first episode alone had 87 individual speaking parts!) The motion, quick cuts, and excitement continue right to the end of each show, when the pace suddenly slows and a final image fades to black.



What do people find in these portrayals? They see intelligent, dedicated, compassionate, creative physicians who are extraordinarily involved in their patients’ care. These doctors are burdened by bureaucracy, whether governmental or institutional, but they somehow manage to work through it. They also see doctors who are flawed. They, like us, are human. **MM**

Jon Hallberg is a physician at the Fairview Nicollet Mall Clinic. His Medicine & the Arts column appears periodically in Minnesota Medicine. The column won a 1999 Minnesota Publishing Excellence Gold Award from the Minnesota Magazine & Publications Association.

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A Century of Neonatal Medicine

Technological advances and changing social values have led to stunning gains in newborn medicine.

Richard C. Lussky, M.D.

Historically, newborn medicine has been surrounded by controversy and affected by the ethical, cultural, and political values of the society in which it is practiced. The past 150 years have produced dramatic changes in neonatal and infant mortality and morbidity (Figure 1); the latter half of the 20th century in particular has seen an explosion of new concepts and technology in perinatology and neonatology. The current practice of newborn medicine has been sculpted by significant recent accomplishments as well as by medical misadventures. Here are some of the highlights.

19th Century: First Incubator

Before the late 19th century, physicians essentially ignored infants. There were no institutions dedicated to the care of infants except foundling homes, where mortality rates were as high as 85% to 95%.¹ Industrialization in the 19th century, including the employment of women in factories, the associated increase in use of artificial feeding (i.e., dry nursing), and child abandonment and the related development of foundling homes, resulted in the highest recorded infant mortality: more than 230/1,000 births in 1870.²

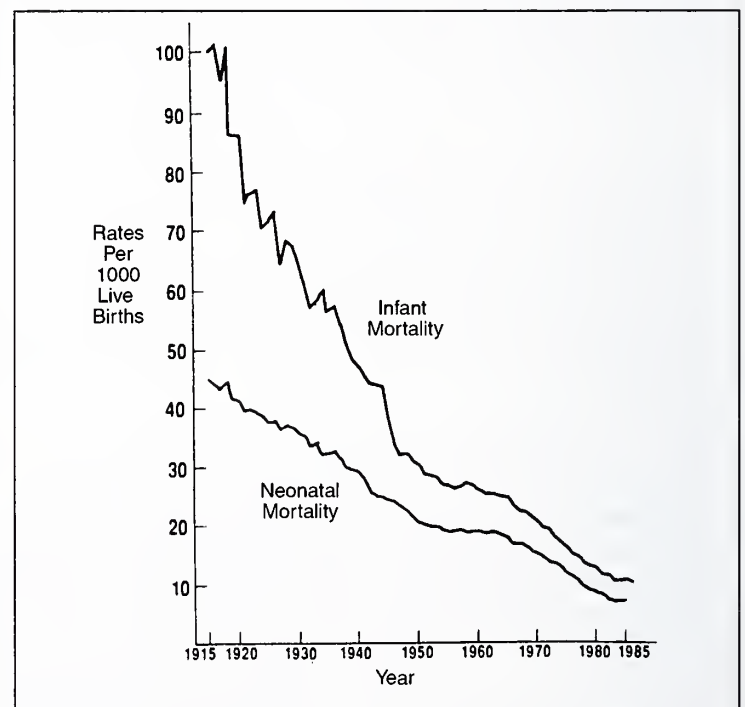
These high infant death rates, coupled with falling birth rates in the late 19th century, provoked fears of depopulation and national defense vulnerability, and in Europe spawned the Infant Welfare Movement (IWM) from 1870 to 1920. Seeking to preserve the lives of all infants, even those prematurely born, the IWM marked one of the first times newborn medicine was affected by political and social concerns. Incubators were built, special care nurseries were expanded, and preventive "well baby" care was practiced.

Parisian obstetrician Stéphane Tarnier modified a warming chamber for the rearing of poultry to develop the Tarnier-Martin Couveuse (Figure 2) in 1878, an isolette that decreased the neonatal death rate to 38% from 66% among infants with birth weights less than 2,000 grams.³ Another Parisian obstetrician, Pierre-Constant Budin, extended Tarnier's work,⁴ and, as director of the Pavillon des Debiles at the Maternité in Paris,

in the late 19th century developed the principles and methods that form the basis of newborn medicine.

Still other significant accomplishments occurred in obstetrical and newborn care during this era. Jean Louis Paul Denucé in 1857 reported the first use of an incubator in the care of a premature infant.⁵ Martin A. Couney, the "Incubator Doctor" and a student of Budin's, moved to the United States in 1896 and became the first person there to offer specialized care for premature infants.⁶ (See Figure 3.) Carl Credé in Vienna introduced the use of silver nitrate to prevent ophthalmia neonatorum,⁷ and William Little, an English orthopedic surgeon, linked birth trauma with cerebral palsy.⁸ (Cerebral palsy had previously been thought to be secondary to the irritation and convulsions of teething.) In addition, John

FIGURE 1



Infant and neonatal mortality rates of United States, 1916–1985. Reprinted with permission of *American Journal of Perinatology*.

Ballantyne, an Edinburgh obstetrician, designed the blueprint for the continuity of maternal-infant care. This marked the beginning of antenatal care, as Ballantyne, besides arguing for continuity of care, stated that maternal diseases such as syphilis, typhoid, and tuberculosis, and maternal ingestion of toxins adversely affected fetal health and growth.⁹

At the end of the 19th century, these medical and technical advances paralleled significant developments in care delivery. Foundling homes, originally opened for the care of abandoned children, were being replaced with children's hospitals. Home deliveries gave way to hospital births. With hospital births increasing from less than 5% in 1900 to more than 50% in 1921,¹⁰ hospital nurseries began appearing, and pediatricians assumed a larger role in neonatal care.

1900s: Infant Mortality Rates—A Mirror of the Nation's Health

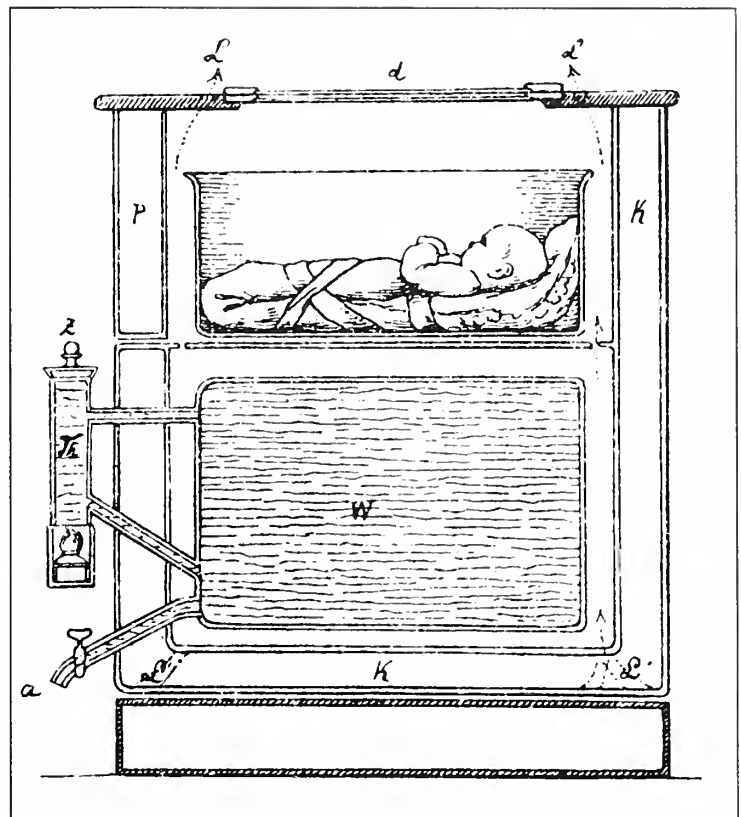
In this era, care of the premature infant was centered in the home, hospital "stations," and commercial premature institutions (exhibits). High institutional mortality in the United States, called "hospitalism," was prevalent, with infant mortality of 50%, secondary to malnutrition and recurrent infections,¹¹ and 78% for admitted premature infants.¹² With the expansion of the European IWM to the United States came a growing awareness that infant mortality rates reflected the overall health and welfare of the nation. A social movement to reduce infant mortality led to the establishment of a Federal Children's Bureau in 1912. Compared with their European colleagues, American physicians were slow to realize the benefits of breastfeeding and the impact of the social environment on medical outcomes.

The early 1900s saw pediatricians beginning to contribute to the science of newborn medicine. Thomas Rotch's "percentage" feeding method, with precise proportions of milk, cream, and sugar modified and mixed daily to meet individual infants' needs, gave pediatricians the role of supervising the use of artificial infant formula when breast milk was unavailable.¹³ Despite his now discredited recommendation of one or two drops of brandy or strychnine (1:1,000) for "stimulation" of cyanotic infants,¹⁴ John Lovett Morse advanced newborn care by promoting the use of growth curves to establish energy demands.¹⁵ At the Kaiserin Auguste Victoria Haus in Berlin, Leo Langstein and Arvo Y'ppo studied the pathology of prematurity, pre- and postnatal growth, and mortality rates of premature infants in relation to birth weight.

1910s: Newborns in a 'No-Man's Land'

With a newly constructed U.S. birth registry in 1915 showing an infant mortality rate of 99.6/1,000 live births,¹⁶ national awareness of the newborn's plight grew. Yet the doctors caring for newborns debated the merits of the obstetrician's focus on the incubator and prevention of early mortality vs. the pediatrician's focus on feeding and the prevention of infection. The relative

FIGURE 2



Tarnier-Martin Couveuse. A double-walled chamber (K) with a glass top (d). Warming was accomplished by heating water with an oil flame in an external "thermosyphon" (Th). The closed incubator was ventilated by a rising current of warm air (L). Water fill was via (Z), and drained through a pet-cock (a). (*Pediatrics* 1979;64:128. Reprinted with permission of the American Academy of Pediatrics.)

FIGURE 3



Martin A. Couney traveled to World's Fairs setting up public exhibits that included sleeping accommodations for two wet nurses, a nursey for bathing and feeding infants, a public viewing room, and a small pharmacy. (*Lancet* 1897;2:744). Infant incubator building at the Pan-American Exposition in Buffalo, NY, 1901. (*Pediatrics* 1979;64:132. Reprinted with permission of the American Academy of Pediatrics.)

merits of hospital-based physician care vs. home-based maternal care also were debated because of the high hospital mortality rates of this era. John Ballantyne in 1916 said the newborn infant was in a "no-man's land" between obstetrics and pediatrics.¹⁷

Pediatricians like L. Emmett Holt, author of the influential 1897 textbook "The Diseases of Infancy and Childhood,"¹⁸ nudged pediatrics further into newborn care. The care of the newborn entered the academic setting through the work of Julius Hess, chief of pediatrics at Michael Reese Hospital in Chicago. Hess established concepts of research in the newborn, developed the Hess Incubator (Figure 4), and became the leading American expert on prematurity.⁶ The Sarah Morris Hospital at Michael Reese Hospital promoted advances in aseptic techniques, neonatal transport service, and nasal feeding under the leadership of the unit's nursing director, Evelyn Lundeen.¹⁹

1920s: Infant Care Carves Its Own Niche

The 1920s represented a time of consolidating and organizing the dramatic technological advances of the preceding decade. The Sheppard Towner Act of 1921 promoted maternal and infant welfare and supported birth and death registries, principles of infant care, state divisions of child hygiene, and scientific solutions for the social problems facing mothers and infants. As hospital

deliveries increased and middle-class women arrived in maternity wards, pediatricians took new interest in newborn care. In 1922 premature infant care carved its own niche with the opening of the Sarah Morris Premature Center, the first unit solely for premature infants,³ and with the publication of Julius Hess's textbook "Premature and Congenitally Diseased Infants,"²⁰ the first book devoted to this topic.

But the 1920s was not all progress. Misplaced concerns about infectious complications spelled the temporary downfall of the incubator. Spirit of ammonia and a small dose of whiskey were advocated for the management of infant apnea (Sarah Morris Hospital, 1922).²¹ Infants were subjected to regimented feeding schedules that included awakening them for feedings, placing bottle nipples in boric acid, timing feedings strictly, and giving water before feeding to manage thirst and regulate temperature. Strictly isolating newborn nurseries reduced newborn epidemics but resulted in maternal-infant separation, impaired mother-infant bonding, and less breastfeeding.

1930s: Rebirth of the Incubator

Infections and diarrhea in newborns declined with improved nursery protocols, better hygiene, and the use of breast milk. For the first time, deaths secondary to prematurity exceeded those caused by infection. The '30s also saw the revival of the incubator, with the development of the Hess oxygen box in 1934,²² which could deliver oxygen to treat respiratory distress.

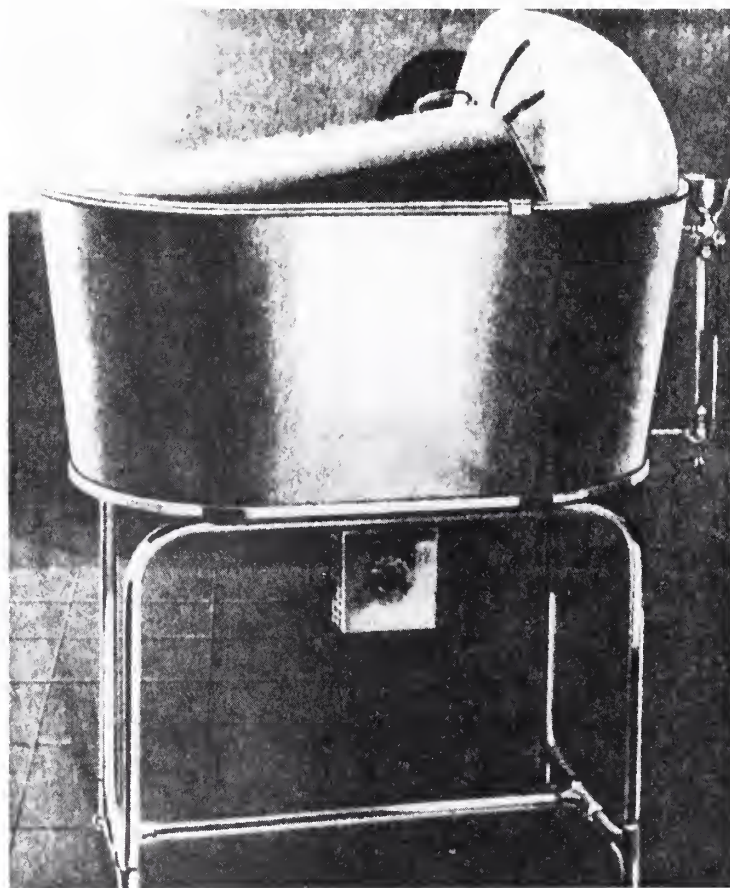
Although the first clinical report of oxygen use for premature or cyanotic infants appeared in 1891,²³ oxygen in this decade was treated as a pharmacological agent and often was administered with a second stimulant, such as brandy. The Hess Incubator was used in the United States' first dedicated neonatal transport vehicle in Chicago. The incubator, which was heated by hot plate-like coils that plugged into the ambulance, also contained holy water (an indication of the high mortality rates?).

1940s: Clinical Triumphs, New Challenges

As the guns of World War II quieted, a "therapeutic explosion" in newborn medicine, with advances in blood banking, fluid therapy, and antibiotics, heralded modern neonatology with both clinical triumphs and iatrogenic diseases. Ninety percent of deliveries now occurred in hospitals, resulting in the construction of new nursery facilities. Pediatricians were increasingly involved in the delivery room and began ordering tests from microchemical laboratories and radiologic facilities, examining infant electrocardiograms, administering fluids from peripheral veins (rather than the peritoneal cavity, the sagittal sinus, or subcutaneous tissues), and treating newborns with an expanding pharmacy of antibiotics. Fifty percent survival at 28 days of age was achieved for infants with birth weights under 1,800 grams.²⁴ (See Figure 5, page 52.)

Advances in diagnosis included N. McAlister Gregg's

FIGURE 4



The Hess Incubator bed. (Hess J, Lundeen E. "The Premature Infant: Its Medical and Nursing Care." Philadelphia: J.B. Lippincott, 1941. Reprinted with permission of J.B. Lippincott.)

1941 discovery of the link between maternal rubella infection and congenital rubella syndrome, and Louis K. Diamond's 1942 description of the link between Rh factor and erythroblastosis fetalis. New therapy followed shortly in 1946 with Diamond's introduction of double volume exchange transfusion, which prevented most cases of kernicterus and saved an estimated 8,000 lives per year in the United States.²⁵ The prevention of erythroblastosis fetalis was eventually made possible by the introduction of RhoGAM in 1963.²⁶

With technological advances came a significant iatrogenic disease, retrolental fibroplasia (RLF), from excessive oxygen administration. RLF was responsible for more childhood blindness—an estimated 8,000 cases—than all other causes combined. The association between oxygen therapy and RLF was eventually determined by Kate Cambell of Australia in 1951.²⁷

1950s: Newborns as Bona Fide Patients

Before 1950, little scientific effort was directed at the premature and seriously ill infant. There was limited peripheral or central intravenous access, and no means of mechanical ventilation or microchemical laboratory determinations. Women were not allowed in the "premature nursery" because of concern about exposing infants to infectious diseases. There were no cardiorespiratory monitors. Infant apnea was managed solely by observation, and apneic infants were stimulated by pulling on a gauze string attached to the infant's foot. Insights into fetal and neonatal physiology, perinatal diseases, and the pathogenesis of in utero and neonatal diseases produced clinical benefits in infant nutrition, RLF, hyaline membrane disease (HMD), and antibiotic therapy.

Basic science led to clinical treatment, with Richard Pattle's discovery of the surface-tension-lowering properties of the alveolar lining layer²⁸ and John Clement's finding in 1957 that surface tension depends on surface area.²⁹ Mary Ellen Avery's and Jere Mead's description of surfactant deficiency as the etiology of HMD,³⁰ a disease that caused an estimated 25,000 deaths per year,³¹ soon followed. This laid the foundation for the eventual administration of surfactant to premature infants, a treatment that revolutionized the field, reducing neonatal mortality from HMD (now known as respiratory distress syndrome, RDS) by 40%.³² William A. Silverman demonstrated that maintaining body temperature by controlling the thermal environment significantly decreased low-birth-weight mortality.³³ With this discovery, thermal management became a cornerstone of neonatology.

In this decade, newborn infants came to be viewed as patients. Virginia Apgar, M.D., M.P.H., developed the Apgar Scoring System, which changed the newborn from a delivery room "byproduct" to a new patient.³⁴ In the '50s and '60s, premature and seriously ill infants began to be transported to regional centers to receive the best care available. The changes in name from premature nursery to special care nursery, and then to newborn intensive care unit (NBICU) reflected the new significance of critically ill newborns.

As much as newborns benefited from medicine's advances, they unfortunately also suffered from its faulty knowledge. The '50s and early '60s were the years of early starvation, when the first feeding was delayed for two to three days in sick or premature infants because of concerns about aspiration pneumonia.³⁵ The result was severe weight loss, frequently as great as 20%. In the '50s, with Jonathan Lanmann's recognition that hyperoxia was causing RLF,³⁶ restricted oxygen use caused increased deaths from respiratory distress. Two iatrogenic diseases related to drug use, the lethal "gray baby" syndrome (from the use of chloramphenicol in premature infants) and kernicterus (from sulfisoxazole prophylaxis) were identified and their pathogenesis clarified. This period's frequent medical misadventures provoked this comment in *Lancet*: "Modern neonatal iatrogenesis reached a peak when almost every major error in newborn care was widely practiced, at least for a time."³⁷

Newborns didn't reap the expected benefits of this era's technological advances. Poverty and deterioration of maternal infant care in America's inner cities prevented the expected annual decrease in infant mortality. Infant mortality rates were 28/1,000 births in the '40s and 21/1,000 births in the '50s.³⁸ Although newborn medicine had made significant gains in the first half of the 20th century, clearly there was much more to accomplish.

1960s: Contemporary Newborn Medicine

Most physicians consider this decade the start of the current "modern practice" of newborn medicine, and the time when the premature nursery became the NBICU. Sparked by the much-publicized 1963 birth and subsequent RDS death of President Kennedy's son, Patrick Bouvier Kennedy, at 32 weeks gestation, the focus of preterm infant care shifted from temperature control, feeding, and vulnerability to diseases to a more comprehensive and scientific approach to newborn infant care. Declaring neonatal mortality unacceptably high, Congress significantly increased neonatal research funding by the National Institutes of Health. Advances occurred in respiratory support, fluid therapy, assessment of low-birth-weight infants, temperature regulation, and the treatment of erythroblastosis fetalis. The terms "neonatology" and "neonatologist" were introduced by Alexander Schaeffer in his landmark textbook "Diseases of the Newborn."³⁹

Initial neonatal ventilators, such as the Puritan Bennett® and the Baby Bird®, were adapted from adult models of the Bird Respirator® and the Bloxom Air Lock Respirator® (iron lung type) and delivered ventilation without continuous positive airway pressure (CPAP).⁴⁰ The Usher Regime, which consisted of intravenous dextrose water with sodium bicarbonate to buffer the respiratory acidosis and Ce-Vi-Sol to decrease pulmonary capillary permeability, was used to treat RDS. In contrast, the earliest attempts to treat RDS consisted of little more than a towel clip around the xiphoid process suspended from the incubator roof with a rubber band.⁴¹

By the middle of this decade, disposable scalp vein needles enabled the use of intravenous fluids, replacing

clysis (in which 30 mls to 60 mls of glucose solution with Wydase® were injected subcutaneously over the scapular and kidney regions, rotating the sites and sealing over the injection site with collodion),⁴² rectal, sagittal sinus (also used for blood draws), and intraperitoneal infusions.⁴³ In 1968 total parenteral nutrition was first used for surgical long-term NPO patients, and soon after for nonsurgical infants.

Lula O. Lubchenco introduced the concepts of small (SGA), large (LGA), and appropriate for gestation (AGA) infants with her publication of data correlating intra-uterine growth with gestational age.⁴⁴ This improved the assessment and management of problems unique to the premature and SGA or LGA infant and provided a standard for postnatal growth of prematurely born infants. This was followed by a more comprehensive description of newborn infants based on birth weight and gestational age.⁴⁵ Despite this decade's progress, at its end, infants of 28 weeks gestation or less were still frequently considered preivable.

1970s: Breathing Easier

Remarkable advances in the respiratory management of the premature infant occurred during the 1970s. The landmark study by George Gregory illustrating the success of CPAP⁴⁶ resulted in a dramatic improvement in the successful respiratory support of premature infants, which at the start of this decade was only 10% for infants with birth weights under 1,500 grams.⁴² The first generation of ventilators designed specifically for neonatal use (Baby Bird I® and Bournes BP 200®) introduced time-cycled, pressure-limited, continuous flow with CPAP, intermittent mandatory ventilation. Respiratory monitoring improved with the introduction of transcutaneous oxygen assessment,⁴⁷ followed by transcutaneous carbon dioxide, pulse oximetry, routine blood gas monitoring, and noninvasive apnea, heart rate, and blood pressure monitoring.

Families and nurse practitioners expanded their roles in the neonatal intensive care unit. Recognizing the need for specialized neonatal nursing care, Steve Boros at St. Paul Children's Hospital developed and implemented the role of the advanced practice nurse.⁴⁸ Families, previously excluded because they were considered infectious disease risks, became an integral part of the NBICU team. Parent support groups were developed, fathers obtained "nonvisitor" status, and breastfeeding was encouraged.

This decade witnessed the introduction of routine eye exams to evaluate for retinopathy of prematurity (ROP); head ultrasounds to assess for intraventricular hemorrhage (IVH); organized follow-up of the high-risk NBICU graduate; and research-based quality outcome assessments. It also saw the use of prenatal glucocorticoids to

decrease RDS, initial trials of surfactant replacement therapy in animals, continued improvement in isolette design, and the first successful use of extracorporeal membrane oxygenation (ECMO) in 1975.⁴⁹ ECMO eventually reduced infant mortality from 80% to 25% for critically ill infants with acute reversible respiratory and cardiac failure unresponsive to conventional therapy in conditions such as persistent pulmonary hypertension, meconium aspiration, and sepsis.

By the end of this decade, newborn medicine had achieved a 50% survival rate for infants with birth weights of 900 grams and gestational ages of 27 weeks (Figure 5).

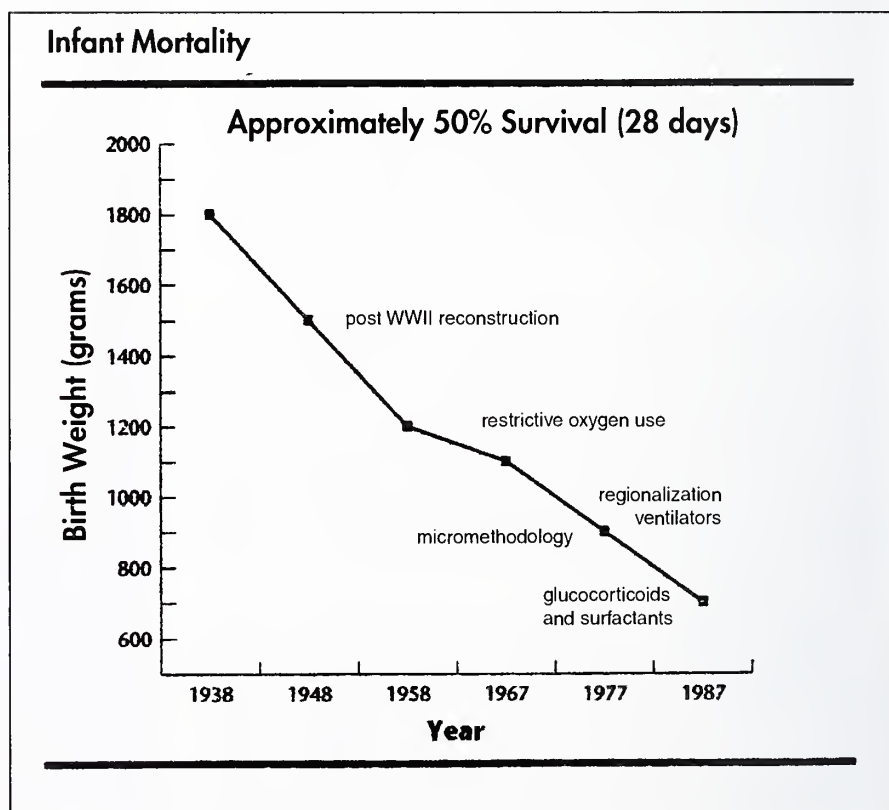
1980s: Surfactant Therapy

The single most significant accomplishment of the '80s was Tetsuro Fugiwara's first successful administration of surfactant to a newborn in 1980.⁵⁰ This was a period of extensive clinical research in the use of surfactant therapy for premature infants born with RDS.⁵¹ Surfactant replacement therapy revolutionized newborn care, dramatically decreasing mortality and morbidity rates.

In the late '80s, family-centered care expanded, with sibling visitation policies, support groups, antepartum consultations, parental rooming-in, kangaroo care (skin-to-skin contact between parents and infants), and multidisciplinary developmental committees.

Beside pulmonary function tests (PFTs) were introduced by M. Douglas Cunningham,⁵² follow-up out-

FIGURE 5



Fifty percent survival by birth weight 1938–1987 juxtaposed with some of the significant perinatal advances of the decades. (*Neonatal Netw* 1994;13:14. Reprinted with permission of ME Avery, A.B., M.D.)

come studies were published, cryosurgery for ROP was introduced, and the AAP and American College of Obstetricians and Gynecologists published the first edition of "Guidelines in Perinatal Care" in 1983.⁵³ The AAP and the American Heart Association introduced neonatal advanced life support with the goal of having qualified personnel in neonatal resuscitation attending every delivery in the country.

As technological progress resulted in smaller and sicker infants in NBICUs, difficult ethical issues emerged. And corporate America entered the NBICU. Competition increased among corporate health care systems, and neonatal physicians now numbered 2,000. The regionalization of the '60s and '70s was unraveling.

1990s: The Micropreemie

The '90s has been the decade of the micropreemie. Successful treatment of these newborns, with gestational ages of 23 to 25 weeks and birth weights of 500 to 750 grams, has been made possible by surfactant replacement therapy, improved perinatal management (including prenatal steroids), new technologies for maintaining temperature, precision micromanagement of fluid delivery, sophisticated nutritional management, and continued improvement in ventilatory management (e.g., patient-triggered ventilation, high-frequency ventilators, pressure and volume support ventilators, and in-line PFTs).

A number of significant accomplishments have occurred in the past 10 years. In 1992, the AAP initiated what eventually became the "Back to Sleep" campaign, which reduced the rate of SIDS by two-thirds, to 0.694/1,000, in 1997.⁵⁴ In 1994 the Pediatric AIDS Clinical Trials Group Protocol 076 was published, recommending perinatal zidovudine, which decreased the perinatal transmission of HIV by two-thirds.⁵⁵ Heidelise Als introduced the Newborn Individualized Developmental Care and Assessment Program, which supported family-centered, individualized developmental care for premature infants⁵⁶ while shortening ventilator days and improving developmental outcomes of NBICU graduates.⁵⁷ The development of interinstitutional, randomized, prospective studies and databases continued. There was increased awareness of the "neonatal golden hour" of delivery room and early management and how it affects long-term outcome, with the beneficial use of prophylactic surfactant, institution of early CPAP, and use of indomethacin for the prevention of severe IVH. Other significant developments were the introduction of nitric oxide for pulmonary hypertension, erythropoietin administration and the rethinking of indications for blood product transfusions for anemia of prematurity, and Group B Beta hemolytic streptococcus maternal prophylaxis and neonatal evaluation/treatment guidelines by the AAP and ACOG.⁵⁸ With improved perinatal management of neonatal sepsis, mortality rates decreased from 90% in the early '30s to the current 4% to 6%.⁵⁹

The Future

As the 20th century ends, significant challenges remain for neonatal and perinatal medicine:

1) an unchanging premature delivery rate of 6% to 7% with significant associated mortality and morbidity;

2) new technology gains, with both clinical benefits and associated higher economic and social costs, increasing concerns about "how small is too small" and how this care will be paid for;

3) maternal-fetal conflict and best-interest arguments including discussion of the best role for parents in end-of-life decisions;

4) the urgent need to address the societal problems that are reflected in the great disparity in premature delivery and infant mortality rates between races, and the United States' infant mortality rank as 20th out of 23 industrial nations;

5) the safe introduction of new technologies with steep, unforgiving learning curves;

6) the deterioration of regionalized perinatal care due to competition;

7) managed care constraints, with the issues of costs vs. quality arguments and resource allocation; and

8) the associated issues of burden of survival morbidity, short hospital stays, and increasing social scrutiny of the field.

With challenges come opportunities, however. Medical science needs to continue to improve the general health of women through socioeconomic initiatives, reproductive technology, and greater access to health care to decrease infant morbidity and mortality, and to create a bright future for American families and babies. MM

Acknowledgments

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Healthy Minnesotans

A Goal We All Share

The state's public health goals and related objectives provide a unifying framework for promoting healthy living.

Debra L. Burns, M.A., and David P. Stroud, M.B.A.

Editor's Note: *New collaborations are closing the gap between public health efforts and medical practice. Read on to see what public health has done for us and our patients and the goals its practitioners hold for all Minnesotans.*

—Barbara P. Yawn, M.D., M.Sc.
Series Editor

Living well may be the best revenge, but living healthy is the best way to enhance our quality of life—and control health care costs while we're at it. Toward that end, the Minnesota Health Department in 1998 published "Healthy Minnesotans Public Health Improvement Goals 2000," a 300-page document specifying 18 public health goals and more than 200 objectives. The "Healthy Minnesotans" initiative aims to provide a common agenda for the many entities that are working to improve the public's health.¹

Establishing the statewide goals, which among others include reducing infectious disease and promoting a violence-free society, was a group effort. The Minnesota Health Improvement Partnership (MHIP)—a coalition of 26 leaders from medicine, public health, business, health plans and health care systems, and many other organizations—and the 49 Community Health Boards from around the state participated in the project. In acknowledgment that the responsibility for a healthy population is shared by the public and private health sectors as well as many other partners, the MHIP developed a vision statement for the goals—"Healthy People in Healthy Communities—A Shared Responsibility." A companion document, "Strategies for Public Health," presents strategies and resource lists that can be used by organizations and individuals working on specific goal areas.²

In addition to providing a shared agenda for action, the goals and objectives in Healthy Minnesotans can be used to track our state's progress and compare it with data from the rest of the nation. The Minnesota Department of Health plans to publish an annual report on progress toward Healthy Minnesotans goals and objec-

tives. The first report, which should be available in February 2000, will track data through 1998.

How Do We Rate Nationally?

Minnesota meets or exceeds many of the national Healthy People 2000 goals (<http://web.health.gov/healthypeople>), as established by the U.S. Department of Health and Human Services.^{3,4} For example, Minnesota Department of Health data indicate that, compared with the rest of the country:

- Minnesota has lower rates of premature death, as measured by Years of Potential Life Lost before age 75 (5,839 MN vs. 7,743). The lower rates of premature death are a key reason that Minnesotans have one of the longest life expectancies in the country (77.26 years Minnesota vs. 75.37).
- In Minnesota, 5.2% of the population has no health insurance, compared with 16% in the rest of the nation. While Minnesota's rate of uninsured has remained stable, the rate in the rest of the country has significantly increased.
- Our communities are relatively safe and free from violence. Minnesota's rates of homicide (3.0 MN vs. 7.9 per 100,000) and firearm-related deaths are consistently lower than the national averages (7.3 MN vs. 12.2 per 100,000).
- Minnesota's rates of infectious diseases, such as tuberculosis (3.2 MN vs. 5.5 per 100,000) and sexually transmitted diseases are significantly lower than those of the rest of the nation.
- Minnesotans are generally well protected from environmental health risks. For example, we have high rates of compliance with drinking water standards (97.8%).

Room for Improvement

But not all the news is good. In Minnesota, people of color are still in worse health than the rest of the population. The rates of reported premature death, homicide, infant death, low birth weight, and sexually transmitted diseases are much higher for certain racial and ethnic groups. For example, a 1997 report on the

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Minnesota's Year 2004 Public Health Improvement Goals

1. Reduce the behavioral risks that are primary contributors to morbidity and mortality.
2. Improve birth outcomes and early childhood development.
3. Reduce unintended pregnancies.
4. Promote health for all children, adolescents, and their families.
5. Promote, protect, and improve mental health.
6. Promote a violence-free society.
7. Reduce the behavioral and environmental health risks that are primary contributors to unintentional injury.
8. Improve the outcomes of medical emergencies.
9. Reduce infectious disease.
10. Promote the well-being of the elderly and those with disability, disease, and/or chronic illness.
11. Reduce exposure to environmental health hazards.
12. Promote early detection and improved management of noninfectious disease and chronic conditions.
13. Promote optimal oral health for all Minnesotans.
14. Reduce work-related injury and illness.
15. Ensure access to and improve the quality of health services.
16. Ensure an effective state and local government public health system.
17. Eliminate the disparities in health outcomes and the health profile of populations of color.
18. Foster the understanding and promotion of social conditions that support health.

Source: Minnesota Department of Health. [Http://www.health.state.mn.us/divs/chs/phg/goals.html](http://www.health.state.mn.us/divs/chs/phg/goals.html)

Spotlight on Goal #1

- Tobacco Use
- Alcohol and Other Drug Use
- ⇒ Physical Activity/Inactivity
- Nutrition
- Weight Management

Despite constant publicity about the importance of physical activity in reducing morbidity and mortality, the term "couch potato" will not be retired from our lexicon anytime soon. Nationwide, nearly half of young people aged 12–21 and more than one-third of high school students do not regularly participate in vigorous physical activity. More than one-half of Minnesota adults are inactive, and older adults, not surprisingly, are less active than younger adults.

OBJECTIVES

- 1) By the year 2004, the Minnesota Health Department would like to see an increase of 10% in the number of children, adolescents, and adults who engage in physical activity for 30 minutes or more at least five days a week.
- 2) Decrease by 10% the number of children, adolescents, and adults who are totally inactive.

BENEFITS

Regular physical activity can help people prevent or manage various chronic diseases. It also promotes self-esteem and improves mental well-being. Minnesotans who are the least active stand to gain the most from becoming moderately active.

HOW DO WE START?

Participation in physical activities should be presented as an enjoyable and easily done lifelong pursuit. Communities can help by providing a diverse range of noncompetitive and competitive activities appropriate for different ages and abilities, and by providing safe facilities. Schools and workplaces also can incorporate healthy physical activity into their daily routine.

health status of populations of color in Minnesota shows that:

- The incidence of low birth weight among African-American women (11.9%) is more than two times greater than the incidence in the white population (5.1%).
- Infant mortality rates for African-American (16.5%) and American Indian (16.2%) babies are more than twice as high as the rates for any other racial or ethnic group in the state.

- Women of color are less likely to receive adequate prenatal care. American Indian women (27.5%) are eight times more likely to receive inadequate prenatal care or no care at all than their white (3.3%) counterparts, and Asian (20.8%) and African-American women (20.4%) are six times more likely to receive inadequate care or no care at all.

- From adolescence through adulthood, African Americans (2 to 2.5 times higher) and American Indians

(2.5 to 3 times higher) in Minnesota have much higher mortality rates than other racial and ethnic groups.⁵

In addition to disparities in the health status of populations of color, the prevalence of certain behavioral risk factors among Minnesotans is higher than national averages. For example, in 1998, almost 42% of 12th-graders had smoked a cigarette in the past 30 days, compared with 35% nationally.

Linking Medicine and Public Health

In Minnesota, we are fortunate to have many collaborations between medicine and public health. These joint efforts may focus on research, service provision (e.g., developing a model for integrated community and clinical prenatal care services), policy development (e.g., an immunization practices task force), or numerous other areas. Both the Minnesota Hospital and Healthcare Partnership and the Minnesota Council of Health Plans have published documents describing how members can contribute to public health goals.^{6,7}

A 1996 report on collaboration in Minnesota, "Developing Partnerships to Improve Public Health," noted that while physicians are recognized as essential partners in public health collaboration, questions remained about appropriate physician roles, incentives for participation, and how to increase medical and public health professionals' understanding of each other.⁸ Minnesota recently received a Turning Point grant from the Robert Wood Johnson Foundation, one objective of which is to strengthen the link between medicine and public health in Minnesota. The Healthy Minnesotans goals can provide a unifying framework and common agenda for those efforts.

MM

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Ten Great Public Health Achievements—United States, 1900–1999

- **Vaccination**, which has resulted in the eradication of smallpox; elimination of poliomyelitis in the Americas; and control of measles, rubella, tetanus, diphtheria, Haemophilus influenzae type b, and other infectious diseases in the United States and other parts of the world.

- **Improvements in motor-vehicle safety** have contributed to large reductions in motor vehicle-related deaths.

- **Work-related health problems**, such as coal workers' pneumoconiosis (black lung) and silicosis, have come under better control.

- **Control of infectious diseases** has resulted from clean water and improved sanitation. Infections such as typhoid and cholera have been reduced dramatically by improved sanitation.

- **Decline in deaths from coronary heart disease and stroke** have resulted from risk-factor modification, such as smoking cessation and blood pressure control coupled with improved access to early detection and better treatment.

- Since 1900, **safer and healthier foods** have resulted from decreases in microbial contamination and increases in nutritional content. Identifying essential micronutrients and establishing food-fortification programs have almost eliminated major nutritional deficiency diseases, such as rickets, goiter, and pellagra, in the United States.

- **Healthier mothers and babies** have resulted from better hygiene and nutrition, availability of antibiotics, greater access to health care, and technological advances in maternal and neonatal medicine. Since 1900, infant mortality has decreased 90%, and maternal mortality has decreased 99%.

- **Access to family planning and contraceptive services** has provided health benefits such as smaller family size and longer intervals between the birth of children; increased opportunities for preconceptual counseling and screening; fewer infant, child, and maternal deaths; and the use of barrier contraceptives to prevent pregnancy and STDs.

- **Fluoridation of drinking water** safely and inexpensively benefits both children and adults regardless of socioeconomic status or access to care by effectively preventing tooth decay.

- **Recognition of tobacco use as a health hazard** and subsequent public health antismoking campaigns have resulted in changes in social norms to prevent initiation of tobacco use, promote cessation of use, and reduce exposure to environmental tobacco smoke.

Adapted from: Centers for Disease Control and Prevention in Morbidity and Mortality Weekly, April 2, 1999;48:241-3.

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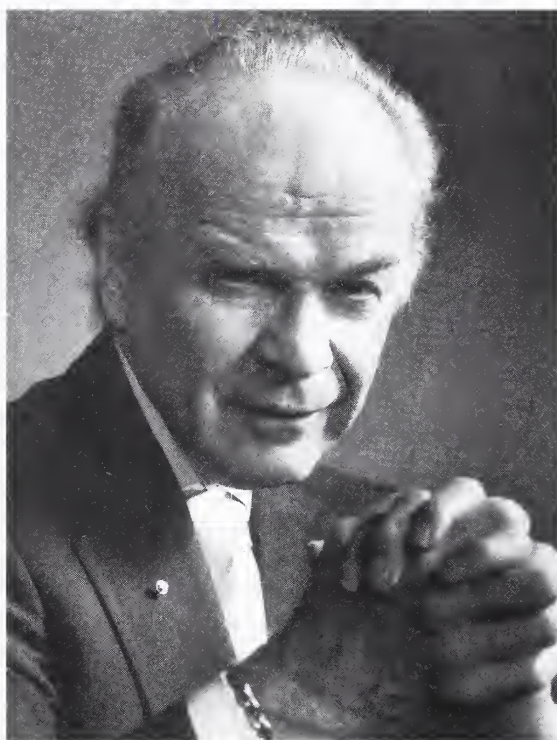
A Tribute to C. Walton Lillehei, M.D., Ph.D.

Jay G. Shake, M.D.

C. Walton Lillehei, M.D., died of cancer on July 7, 1999, at his home in St. Paul, Minnesota. He was 80 years old. Dr. Lillehei's pioneering pursuit of open heart surgery in the 1950s paved the way for the routine surgical treatment of many crippling and life-threatening cardiac abnormalities. His efforts drew international attention to the University of Minnesota and sparked other medical discoveries.

Clarence Walton Lillehei was born in Minneapolis on October 23, 1918, the first of three children. He was described as a handsome boy who enjoyed sports and the outdoors. Like many other great scientists, he was said to understand instinctively how things worked. He attended West High School and later graduated from the University of Minnesota Medical School. He finished his internship in 1942 and was called to World War II. He commanded a mobile Army Surgical Unit and later won a Bronze Star.

Returning from the service, Lillehei began his residency on January 1, 1946, at the University of Minnesota under Chief of Surgery Owen Wangensteen, M.D. There, Lillehei worked under Clarence Dennis, M.D., and Richard Varco, M.D., of the



1918–1999

Department of Surgery and Maurice Visscher, M.D., Ph.D., professor and chairman of the Department of Physiology. Lillehei became a clinical instructor in the Department of Surgery in July 1951 and was promoted to professor in June 1956.

Interest in surgical correction of cardiac abnormalities at the University of Minnesota dates to September 1939, when Dr. Wangensteen successfully ligated a patent ductus arteriosus in a child. John F. Lewis, M.D., first closed a simple atrial septal defect in September 1952, using immersion hypothermia. In May 1953, John H. Gibbon Jr., M.D., of Jefferson University in Philadelphia repaired an atrial septal defect using a screen oxygenator. Although surgeons worldwide were excited about this development, progress in cardiac surgery was impeded by the repeated failures of blood oxygenators, which were needed to repair complex abnormalities. Many medical "experts" claimed that success in operating on a "sick" heart was unlikely.

At the University of Minnesota on March 26, 1954, Dr. Lillehei repaired a child's ventricular septal defect using the patient's parent as an oxygenator—

the first application of cross-circulation. With courage and inspiration, Dr. Lillehei changed cardiac surgery overnight and silenced the critics. The practice of open heart surgery was born.

At the time, Dr. Lillehei was the only surgeon in the world who could correct complicated intracardiac defects using cross-circulation. To do so, he had to overcome several obstacles. Heart block was a significant complication in cardiac surgical patients undergoing closure of ventricular septal defects. Because of the discomfort electrodes on the skin caused patients, Lillehei began experimenting with directly attaching electrodes to the right ventricle wall. In January 1957, he and his team for the first time used a pacemaker with a myocardial electrode on a human. The mortality among open heart patients dropped sharply following this innovation.

Early in 1958, Dr. Lillehei told electrical engineer Earl Bakken that he needed a portable pacemaker for patients who developed heart block following surgery. Within a few weeks, Bakken returned with a small, battery-powered pacemaker. The device served so well that, with the encouragement of Dr. Lillehei, Bakken and his brother-in-law incorporated a pacemaker business under the name Medtronic Inc. By 1960, Dr. Lillehei and his colleagues had used the new devices in 66 patients. Further refinements and new technology have led to the development of a billion-dollar industry in Minnesota.

Working with surgical residents, particularly Richard A. DeWall, M.D., Dr. Lillehei successfully developed a bubble oxygenator, which replaced cross-circulation in 1955. The disposable plastic oxygenator was easy to manufacture and could be distributed to operating rooms throughout the world.

In November 1967, Dr. Lillehei left Minnesota to become professor and chairman of the Department of Surgery at New York Hospital-Cornell Medical Center. He remained there through 1974 and later returned to the University of Minnesota as a clinical professor in the Department of Surgery.

Dr. Lillehei also contributed to the design of four prosthetic heart valves, including the "gold standard" St. Jude valve used by many surgeons today. In 1970, he became director of medical affairs for St. Jude Medical, a position he held until his death. In addition, he authored more than 700 clinical research publications.

Despite Lillehei's many landmark achievements, perhaps his greatest accomplishment was training more than 150 cardiothoracic surgeons. Twenty-three of his trainees became directors of cardiac surgery programs, and in turn, they trained hundreds of surgeons. Many cardiac surgeons in the United States and worldwide can trace their training lineage to the

University of Minnesota Hospital. Among them are Norman Shumway, M.D., of Stanford University, who refined the technique of cardiac transplantation, and Christiaan Barnard, M.D., of South Africa, who performed the first successful heart transplant.

Dr. Lillehei received several honorary doctorates and held numerous memberships in foreign societies. He also was a member of 45 scientific societies and was a past president of the American College of Cardiology. Dr. Lillehei was honored with numerous national and international awards, including the Lasker Award, and was nominated several times for a Nobel Prize in medicine.

Dr. Lillehei was married for 52 years to Kaye Lindberg Lillehei. Two of their children followed their father into medicine: Craig Walton Lillehei, M.D., is assistant professor of pediatric surgery at Boston Children's Hospital, and Kevin Owen Lillehei, M.D., is associate professor of neurosurgery at the University of Colorado. Daughter Kimberle Loken lives in Duluth, Minnesota.

On his 70th birthday, Dr. Lillehei was honored by his friends, former students, and family. At this time, the C. Walton and Richard C. Lillehei Professorship in Cardiovascular Surgery was established at the University of Minnesota.

Dr. Lillehei was truly a pioneer in American medicine and can be credited with advancing cardiothoracic surgery and biomedical engineering. His greatest contribution, however, may be in the lasting and far-reaching effect he had in training hundreds of cardiac surgeons. His energy, working through these surgeons, continues to heal the hearts of children and adults the world over.

At Dr. Lillehei's memorial service, on August 5, 1999, one of his internationally recognized trainees, Vincent L. Gott, M.D., professor emeritus in the Cardiac Surgery Division at the Johns Hopkins Hospital, remembered his teacher: "Walt gave all us trainees, both in the lab and on his clinical service, tremendous responsibility. We were treated like colleagues and associates and not apprentices. I can't imagine another surgical mentor in the world who established such close rapport and bond with trainees."

Dr. Gott then referred to one of Dr. Lillehei's favorite quotations: "Some men see things as they are and ask why change? Others dream of things that never were and ask why not." Walt, we are tremendously grateful that you dreamed of things that never were and asked, "Why not?"

MM

Jay Shake, a third-generation Lillehei trainee, is a resident in the Cardiac Surgery Program at the Johns Hopkins Hospital in Baltimore.

In Memoriam

Eugene E. Ahern, M.D.
University of Minnesota, 1940
Born: 1912, Died: Nov. 17, 1998



Budd Appleton, M.D.
New York Medical College, 1954
Born: 1928, Died: August 28, 1999



D.M. Bernstein, M.D.
University of Colorado, 1949
Born: 1919, Died: Nov. 11, 1998



James H. Cain, M.D.
University of Oklahoma, 1942
Born: 1918, Died: Jan. 3, 1999



Robert E. Carter, M.D.
University of Minnesota, 1948
Born: 1923, Died: Dec. 31, 1998



Robert H. Conley, M.D.
University of Minnesota, 1943
Born: 1917, Died: August 4, 1999



George M. Cowan, M.D.
University of Minnesota, 1937
Born: 1909, Died: April 26, 1999



Alfred Doscherholmen, M.D.
Fakultet Universitetet i Oslo, 1946
Born: 1916, Died: August 16, 1999



Robert W. Emmons, M.D.
Indiana University, 1942
Born: 1918, Died: March 26, 1999



Robert D. Estrem, M.D.
University of Minnesota, 1941
Born: 1916, Died: March 8, 1999

Leslie M. Evans, M.D.
Medical College of Wisconsin, 1935
Born: 1909, Died: May 7, 1999



Philip Feinberg, M.D.
University of Minnesota, 1939
Born: 1915, Died: Feb. 10, 1999



Joseph M. Gacusana, M.D.
University of Minnesota, 1965
Born: 1931, Died: Sept. 5, 1999



Veronika M. Gailitis, M.D.
Latvijas Universitate Fakultate, 1936
Born: 1905, Died: Sept. 9, 1999



William H. Goodnow, M.D.
University of Minnesota, 1949
Born: 1921, Died: May 3, 1999



Karen B. Granlund, M.D.
University of Minnesota, 1986
Born: 1959, Died: Oct. 2, 1999



Paul O. Gustafson, M.D.
University of Minnesota, 1953
Born: 1920, Died: Dec. 18, 1998



Harold T. Gustason, M.D.
University of Minnesota, 1927
Born: 1900, Died: Oct. 10, 1999



Harry B. Hall, M.D.
University of Minnesota, 1936
Born: 1911, Died: May 19, 1999



Evelyn E. Hartman, M.D.
Laaketieteellinen Tiedekunta Helsingin
Yliopisto, 1945
Born: 1912, Died: Aug. 28, 1999

John E. Hildebrand, M.D.
Wayne State University, 1944
Born: 1920, Died: Feb. 8, 1999



William L. Jefferies, M.D.
University of Arkansas, 1945
Born: 1923, Died: March 24, 1999



Douglas L. Johnson, M.D.
University of Minnesota, 1934
Born: 1909, Died: July 27, 1999



David G. Jones, M.D.
Case Western Reserve, 1944
Born: 1918, Died: March 3, 1999



Clarence V. Kusz, M.D.
University of Minnesota, 1942
Born: 1916, Died: Dec. 24, 1998



Paul F. Leonard, M.D.
University of Nebraska, 1959
Born: 1926, Died: Sept. 8, 1998



Curt W. Lundquist, M.D.
University of Minnesota, 1935
Born: 1907, Died: July 22, 1999



John R. Mach, M.D.
Medical College of Wisconsin, 1955
Born: 1929, Died: Sept. 26, 1998



David G. MacMillan, M.D.
University of Minnesota, 1940
Born: 1913, Died: Jan. 15, 1999



J. Paul Marcoux, M.D.
Laval University Faculty, 1961
Born: 1934, Died: Feb. 27, 1999

In Memoriam

Gordon M. Martin, M.D.
University of Nebraska, 1940
Born: 1915, Died: July 6, 1999



Alma Venters Millers, M.D.
Latvijas Universitate Fakultate, 1931
Born: 1902, Died: Nov. 22, 1998



Howard O. Mortenson, M.D.
University of Minnesota, 1952
Born: 1919, Died: Feb. 14, 1999



James G. Myhre, M.D.
Temple University, 1942
Born: 1917, Died: Oct. 19, 1998



Milton Orkin, M.D.
Tulane University, 1954
Born: 1929, Died: March 5, 1999



W. Spencer Payne, M.D.
Washington University, 1950
Born: 1926, Died: April 21, 1999



Gertrude L. Pease, M.D.
Creighton University, 1941
Born: 1902, Died: Oct. 26, 1998



James R. Ralph, M.D.
Medical College of Wisconsin, 1942
Born: 1916, Died: Nov. 12, 1998



H. Robert Ransom, M.D.
University of Minnesota, 1937
Born: 1910, Died: July 26, 1999

Mark R. Rathke, M.D.
University of Minnesota, 1978
Born: 1951, Died: April 3, 1999



John W. Rosevear, M.D.
Northwestern University, 1953
Born: 1927, Died: Dec. 28, 1998



Clarence John Rowe Jr., M.D.
University of Minnesota, 1943
Born: 1916, Died: July 29, 1999



Warren Henry Ruchie, M.D.
St. Louis University, 1946
Born: 1922, Died: Oct. 9, 1999



Alan P. Rusterholz, M.D.
University of Minnesota, 1945
Born: 1921, Died: Feb. 12, 1999



Sidney S. Scherling, M.D.
University of Minnesota, 1935
Born: 1910, Died: Oct. 9, 1998



Reinhardt L. Schmidtke, M.D.
University of Minnesota, 1933
Born: 1906, Died: April 10, 1999



Richard E. Sedlack, M.D.
Northwestern University, 1956
Born: 1931, Died: Nov. 17, 1998



Keith W. Sehnert, M.D.
Born: 1926, Died: June 22, 1999

Howard H. Shear, M.D.
State University of New York, 1961
Born: 1925, Died: June 20, 1999



Murray N. Silverstein, M.D.
Jefferson Medical College, 1954
Born: 1928, Died: Sept. 1, 1998



George T. Tani, M.D.
University of Minnesota, 1951
Born: 1915, Died: March 22, 1999



Robert G. Tinkham, M.D.
University of Minnesota, 1943
Born: 1918, Died: Sept. 29, 1998



Thomas E. Vanderpool, M.D.
University of Minnesota, 1955
Born: 1923, Died: Feb. 15, 1999



C. Gordon Vaughn, M.D.
University of Minnesota, 1948
Born: 1926, Died: Sept. 17, 1999



Homer D. Venters, M.D.
Emory University, 1951
Born: 1925, Died: June 6, 1999

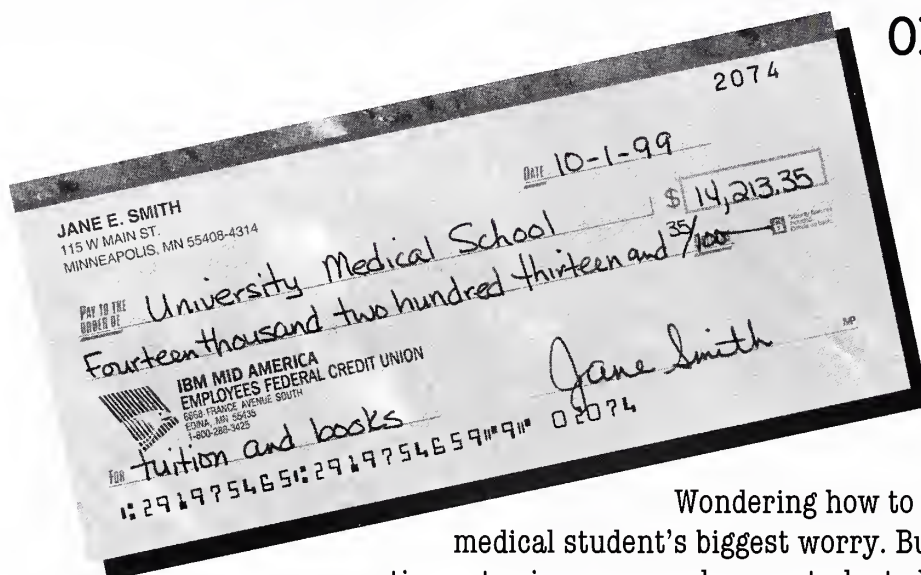


Matthew J. Weir, M.D.
University of Minnesota, 1948
Born: 1924, Died: July 22, 1999



Louis H. Wittrock, M.D.
Medical College of Wisconsin, 1943
Born: 1914, Died: Sept. 18, 1998

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Assessing 'Medicine's 10 Greatest Discoveries'

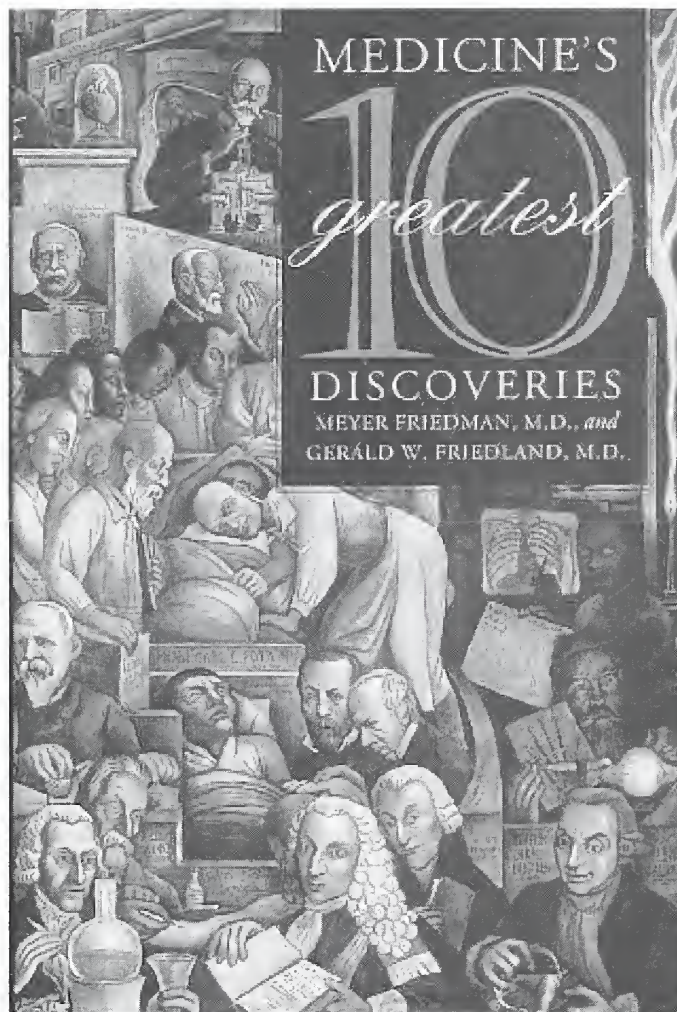
At the turn of the century, two physicians offer their picks for the greatest medical discoveries of all time.

Reviewed by Charles R. Meyer, M.D.

December 31 traditionally brings a flurry of superlatives—mosts, bests, greatest—to characterize the previous year. The end of a century and, worse, a millennium, promises to glut us with sports-page hype about the previous 100 and 1,000 years. Medicine is not immune (and neither is *Minnesota Medicine*—see our feature stories). Meyer Friedman, M.D., and Gerald W. Friedland, M.D., present their “Top 10” list in their recent book, “Medicine’s 10 Greatest Discoveries” (Yale University Press, 1998). Their choices include the predictable, the debatable, and the obscure.

Predictable are Vesalius’ “Fabrica,” which refuted centuries of Galen’s misconceptions and embraced the scientific method for studying anatomy; William Harvey’s “De Motu Cordis,” describing blood circulation; van Leeuwenhoek’s microscopic revelations of bacteria; Edward Jenner’s cowpox immunization for prevention of smallpox; Wilhelm Roentgen’s discovery of x-rays; and Alexander Fleming’s stumbling onto penicillin’s antibacterial properties.

Some of Friedman and Friedland’s selections are debatable, not because



the discoveries aren't important, but because their importance is still evolving or the discoverer's identity is still in question. Russian scientist Nikolai Anichkov proved in 1912 that feeding cholesterol to rabbits produced atherosclerosis. Eighty-seven years later, cholesterol is seen as just one risk factor in this dis-

ease. The description of DNA was the 20th-century discovery most likely to mold 21st-century medicine. But instead of focusing on the obvious Watson and Crick, the authors chose Maurice Wilkins, a behind-the-scenes contributor. Anesthesia for surgery clearly revolutionized medicine. What is not so clear is who deserves the credit for its discovery. Friedman and Friedland tell the fascinating story of Georgia general practitioner Crawford Long, who quietly competed with Harvard hotshots Morton, Wells, and Jackson for kudos for using ether as an anesthetic in surgery. The authors chose Long for the prize, but others, including Harvard University, have voted otherwise.

And the obscurity prize goes to Ross Harrison. Know who he is? Harrison pioneered tissue culture by growing frog medullary tube tissue in frog lymph. Important, but obscure.

Any “greatest” list is debatable and probably an unfortunate abdication to pop culture. But “Medicine’s 10 Greatest Discoveries,” despite its idiosyncratic picks and occasionally hyperbolic prose, is an entertaining look at medicine’s past. **MM**

Charles Meyer is editor-in-chief of Minnesota Medicine.

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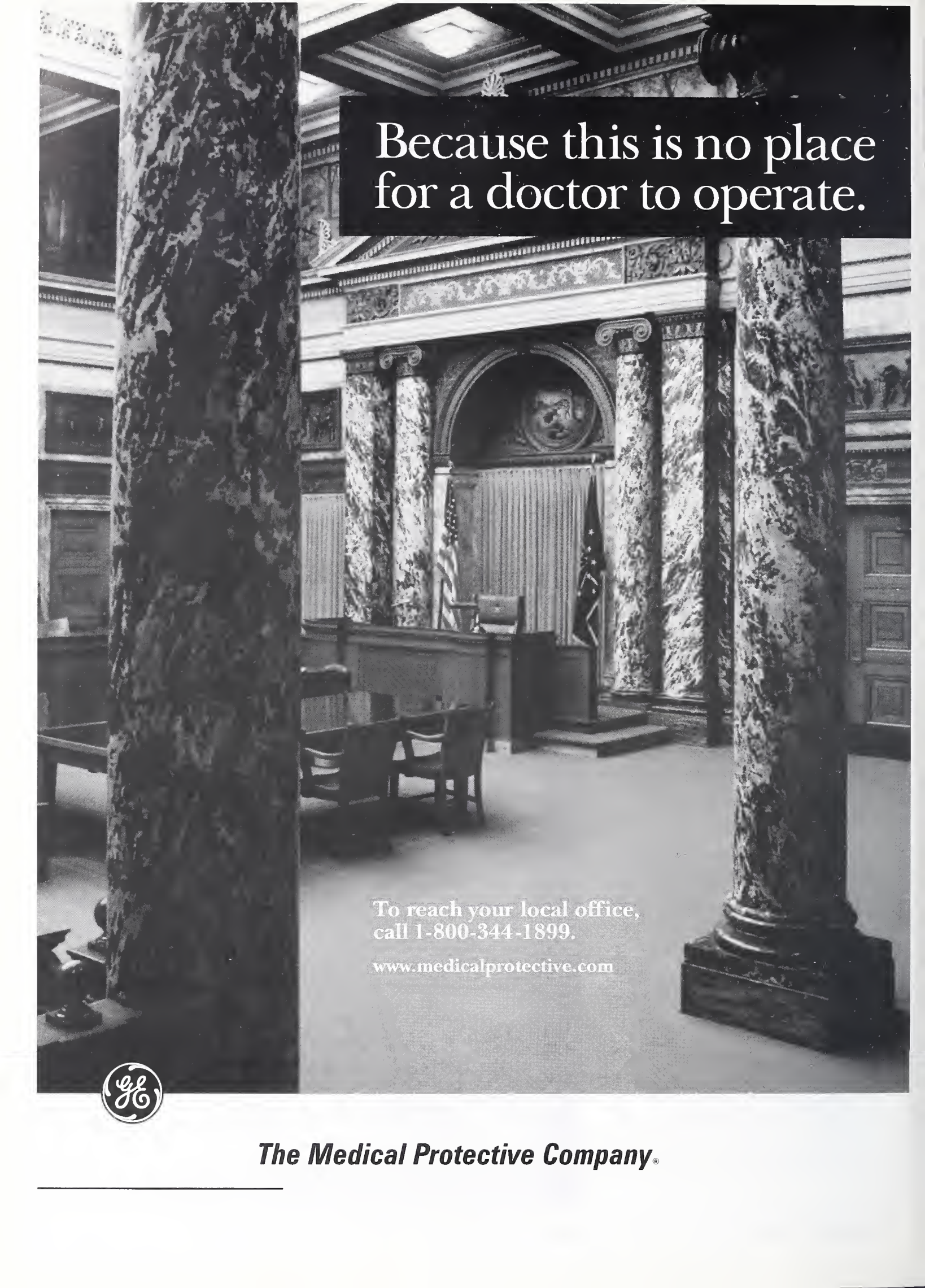
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DECEMBER 1999

Dec. 6-10 **Team Management of Diabetes** Institute for Research and Education HealthSystem Minnesota; International Diabetes Center, Minneapolis, MN. CONTACT: International Diabetes Center, 3800 Park Nicollet Boulevard, Minneapolis, MN 55416-2699; 612/993-3393.

Dec. 10 **8th Annual Family Practice Update** Hennepin County Medical Center; Sheraton Inn Airport, Bloomington, MN. CONTACT: Ann Samways, 701 Park Avenue, Mail Code 861-B, Minneapolis, MN 55415-1829; 612/347-2078.

JANUARY 2000

Jan. 7-8 **MAO Midwinter Conference** Minnesota Medical Association and Minnesota Academy of Otolaryngology-Head and Neck Surgery; Radisson Plaza Hotel, Minneapolis, MN. CONTACT: Robyn Lampright, Minnesota Academy of Otolaryngology-Head and Neck Surgery, 3433 Broadway Street NE, Suite 300, Minneapolis, MN 55413-1761; 612/362-3736.

Jan. 10-14 **Bone and Tissue Tumors** Mayo Foundation; Maui, HI. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

Jan. 21 **Rheumatology Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention Center, Duluth, MN. CONTACT: Catherine Koski, Medical Education Coordinator, 400 East Third Street, Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3854.

FEBRUARY 2000

Feb. 5-12 **HealthEast Winter Medical Seminar 2000** HealthEast; Melia Azul Ixtapa, Ixtapa, Mexico. CONTACT: Annette Anderson, 1700 University Avenue West, St. Paul, MN 55104; phone: 651/232-5104.

Feb. 24-26 **Mayo Clinic State-of-the-Art Symposium: Arrhythmia Management** Mayo Foundation; Silverado Resort, Napa, CA. CONTACT: Registrars, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

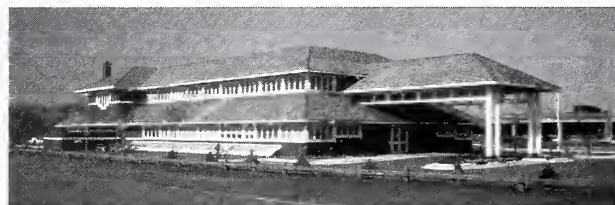
Feb. 27- Mar. 3 **Brain to Pelvis: 2000—The Seventh Conference** University of Minnesota; Pines Lodge, Beaver Creek, CO. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Feb. 29-Mar. 3 **Whitefish 2000: Timely Issues for the New Millennium** University of North Dakota School of Medicine and Health Sciences and MeritCare Health System; Grouse Mountain Lodge, Whitefish, MT. CONTACT: Whitefish Conference Hotline, 701/234-6913, or e-mail (whitefishconference@meritcare.com).

MARCH 2000

Mar. 1-2 **Geriatric Drug Therapy** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Mar. 3 **Prevention and Management of Atherosclerotic Diseases** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue



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SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Mar. 17 **Women's & Children's Health Conference** St. Mary's/Duluth Clinic Health System; Duluth Entertainment Convention Center, Duluth, MN. CONTACT: Catherine Koski, Medical Education Coordinator, 400 East Third Street: Maildrop 5AV2ME, Duluth, MN 55805; 218/725-3854.

A P R I L 2 0 0 0

Apr. 7 **Cardiac Arrhythmias** University of Minnesota; Earle Brown Heritage Center, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

Apr. 14-15 **Annual Ophthalmology Course** University of Minnesota; Radisson Hotel Metrodome, Minneapolis, MN. CONTACT: Registrar, Office of Continuing Medical Education, 615 Washington Avenue SE, Suite 107, Minneapolis, MN 55414; 612/626-7600 or 800/776-8636.

M A Y 2 0 0 0

May 2-5 **7th International Surgical Pathology Symposium** Mayo Foundation; The Queen Elizabeth, Montreal, Quebec, Canada. CONTACT: Registrar, Mayo Foundation, Section of Continuing Medical Education, 200 First Street SW, Rochester, MN 55905; 800/323-2688.

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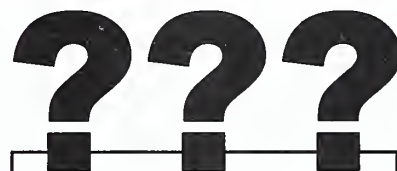
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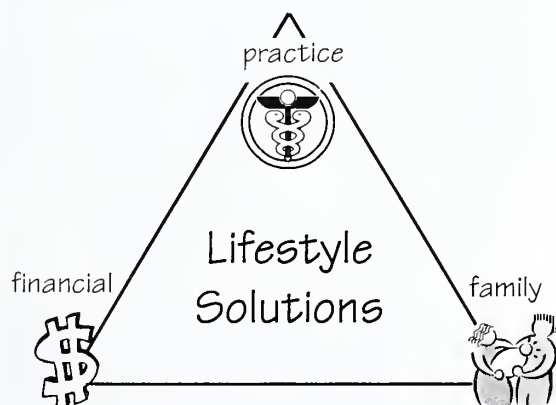
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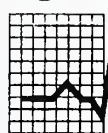
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